

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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TO OUR READERS.

The Supply of "FLIGHT." Important Notice.

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An Order Form will be found on page xxiv.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The semi-famine in printing paper calls for this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

EDITORIAL COMMENT.

AN old and very terse axiom which has much to recommend it contains the advice that if a man points a pistol at you, knock him down; it is time enough afterwards to find out whether it is loaded or not. We are reminded of this by the non-existence of a British airship fleet to counter the Zeppelins of the Germans.

As we pointed out last week, the mere fact of the Germans persisting in building up a fleet of these leviathans before the war should have been sufficient justification for our Government to have also laid in a

stock of the same pattern, more or less, just against possibilities. It would have been time enough afterwards to have found they were not of much material use after all. The wisdom of such foresight has never been brought home to us more than by recent happenings. At least, the country generally has at last fairly woken up to the state of unpreparedness in which we find our air forces, and it is almost ludicrous to see the hurry with which everything has now to be remedied. The agitation which has been started throughout the country, led by the daily press, is a welcome sign that the realities and possibilities of the situation have at this late hour been grasped. From all this to-do we are hopeful that something definite will result in bringing about the realisation of that Third Service, or at least an emergency "understudy" of it, which we have advocated, and for which by this time the people are not only prepared, but are asking for in terms sufficiently strong to amount to a distinct mandate for the Government to take the matter up. That a great many snags stand in the way, we are well aware, but they are not of such a nature as to be insuperable. Times are abnormal, and measures must be abnormal. If in the process of re-organisation some long-whiskered old fetishes and legends have to go by the board so much the better. This disintegration of moribund bodies and theories may give a helping hand towards re-modelling many century-old anomalies, which require nothing short of such a world-upheaval as we have at present in full blast, to rivet attention to their obsolescence. When peace breaks out, a good many changes, amounting to official revolution, may be confidently looked for, and aviation will, we fancy, be found leading the way for the introduction of many



The
Country
Waking Up.

"novelties" which will, without doubt, shock the nerves and frame of Mr. Vested Interest in a variety of directions. The desirability in the meantime of obtaining a single man for the control of air affairs is becoming more urgent than ever, and although we are not in accord with much of the detail of the Press campaign, which seeks to achieve this object, there is a very great substratum of sound common sense in the agitation, taken as a whole, to command the serious attention of the Government as representing the will of the people. Let the writing on the wall be read in its broad meaning, before it is once again "too late." In all the column-miles of Press "airism" being at present thrust upon the community, we are glad to see that the *Times* is keeping its head, whilst backing up the general demand. By way of contrast to the hopeless tactics and articles in many other directions, the moderately worded *Times* leader on Tuesday last is a very helpful contribution to the Air Minister campaign. In this the more insistent pros and cons, which have been so often pointed out and referred to in *FLIGHT*, are quietly emphasised, and for that reason carry a conviction of sincerity with them which miles of irresponsible frothing could never achieve. The following extract from this editorial contribution, which is headed "Responsibility for Construction," is, we think, sufficiently germane to the *raison d'être* of *FLIGHT* as to justify our quoting it. Thus the *Times* :—

"There is a certain risk that the new and very healthy public interest in our air Services, and especially the demand for a man to take charge of them, may tend to concentrate too narrowly upon the defence of these islands, or even of London, from enemy raids. Home defence, however important it must loom after a raid like that of last week, is only a part of the great problem of mastery of the air. There will be plenty of time, for instance, to talk about 'reprisals'—not in the 'women and children' sense, but in that of effective measures to stop air raids at their source—when we are in a position to wage war on the enemy instead of letting him wage war on us. We are not in this position at present, and the question is how most rapidly to increase our means of offence. We believe that one vital measure of organisation, though it is seldom mentioned in this connection, is to put the control of the production of aircraft under a single head. At present there is no centralised policy in the matter. Every one who knows anything about it knows that the 'generous rivalry' between the Services in the construction of aeroplanes, of which Mr. Balfour spoke on November 11th, has not, in practice, amounted to more than a deplorable and expensive competition for machines and men, together with a wasteful lack of co-ordination in technical results. A machine designed by the Army authorities is apt to be condemned by the Navy, which likes to 'do things its own way,' simply because it is an Army machine, and *vice versa*. But the air is common to both Services, although the conditions in which machines are to be employed by the one or the other may render necessary certain differences in constructive detail. If an Air Minister is to be appointed, he will have to suppress with a firm hand the internal struggles, whether between the Services themselves, between them and the technical experts, or between all of these and the financial authorities, which have hitherto greatly retarded progress. In order to do this—and it is a task to try the highest qualities of brain and character—he must be assisted by advisers representing all the interests concerned, including the private firms, and, having heard what they have to say and made up his mind what to do, he must stand or fall by the result. In this way the country would have some one to answer for our provision of aircraft, who really knew what he was talking about and had resolved on a policy to such an extent as the rapid development of aircraft permits."

Continuing, the *Times* refers to a list of well-known quotations which it publishes from "A Member of Parliament," which illustrate the attitude of Ministers on this all-important subject. These, the *Times* states,

"reveal a pitiful lack of large ideas, coupled with a strenuous determination to defend, first and foremost, their Departmental advisers, and at all costs to discourage criticism. But the public is never told the truth, and mistakes are never brought home to those responsible for them. We have, even now, no reason for confidence that the Government realises the seriousness of the situation or is 'thinking ahead' on the lines of a large policy."

Let us hope, however, that the Government, like the country, have at last woken up, and will take in hand the "Air Service" upon such advanced lines that its possibilities may be fully brought into being, as viewed from the broadest possible standpoint, bringing in incidentally the provision of a really efficient anti-aircraft organisation—although we hope the "scrapping" of Sir Percy Scott may not be an earnest of their intentions in this direction—and providing, in due course, for reprisals. But these latter should be of a character which would not seek the infliction of punishment upon women and children, but would rather set out to bring about really serious material damage of a military character. The Germans would then have all their work cut out to defend their centres of activity, and would be less inclined to waste their efforts in bringing about the deaths of British mothers and their babes, just by way of venting their insatiable lust for "strafing England." There is one form of "reprisal," however, which we think would be highly effective if its essence, and our intention of enforcing it, could only be brought clearly before those in the enemy country who have real knowledge of what the probabilities are of an "honourable peace" à l'Allemagne ever being brought about. The form of reprisal which we suggest is, that for every air-raid, other than of a legitimate military character, a certain period shall be set, *after the war*, during which no Germanic mercantile shipping should be allowed on the seas of the world. For each raid—and this might be made retrospective, if further raiding took place—a "sentence" of one year's suspension from sea-trading would, we think, be found sufficient to check a lot of the "Zeppelin Joy Days" which are made so much of in the Central Empires. The Huns know we have the power to enforce our "sentence," and just think of it, what it would mean to the Germans as a nation, and on the other hand to Great Britain and the rest of the world, if the competition of these past-masters in the art of commerce were debarred from trafficking against the rest of the commercial world for five or more years! Why tariffs, however drastic, could not hold a candle to such a method of retaliation. And it should be remembered we are already up to "X raid No. 17"! So let the ultimatum go forth, and if nothing else will bring these barbarians to reason, the touching of their trading propensities by this means would, we venture to think, have a very salutary effect. At the re-opening of Parliament next week some lively times may be confidently looked for over the air muddle, and we imagine it will be difficult for the Government to smother with the customary carefully-worded explanations for very much longer the undoubted disposition of the people to have the Air Service of the country treated as not only of prime, but of the prime importance to the Nation's welfare.



RETRIBUTION. THE "KING STEPHEN" TRAWLER AND ZEPPELIN "L19" INCIDENT IN THE NORTH SEA.—Bringing retribution home to the Zeppelin pirates after their raid over England on Monday night last week. The non-rescue of the crew of this wrecked airship is a direct outcome, and a very stringent object-lesson, of the estimate in which the word of the Germans is now held by civilised people. Had they been other than Germans they would without question have been immediately rescued and brought safely to land, but from past experience the word of the Hun is now synonymous of nothing less than fraud and lying. The Bishop of London has expressed the feelings of most Britons, in regard to this incident, in the following words:—"The whole of the English people ought to stand by the skipper of the trawler that came upon the ruined Zeppelin and who could not trust the word of the Germans. Had he admitted those 22 Germans into his boat they might have turned upon the crew, and the whole German Press would have applauded their action as a clever bit of strategy. Any English sailor would have risked his life to save human life, but the sad thing was that the chivalry of war had been killed by the Germans, and their word could not be trusted." (From an original drawing by Algernon Black.)

Our "Organisa- tion."

Last week we said that there were some weaknesses in our air defence organisation which required light letting in upon them. This was *à propos* of the visit in broad daylight of German aeroplanes, and their return without a ghost of a chance of our attacking them. In this connection a very suggestive letter has appeared in the *Motor News* of Dublin from one of its proprietors—Mr. J. C. Percy, J.P. Mr. Percy, who is a very well-known and respected man throughout these islands, was at Dover at the time of the daylight raid, and this is part of what he writes in regard to the happenings there on that day:—

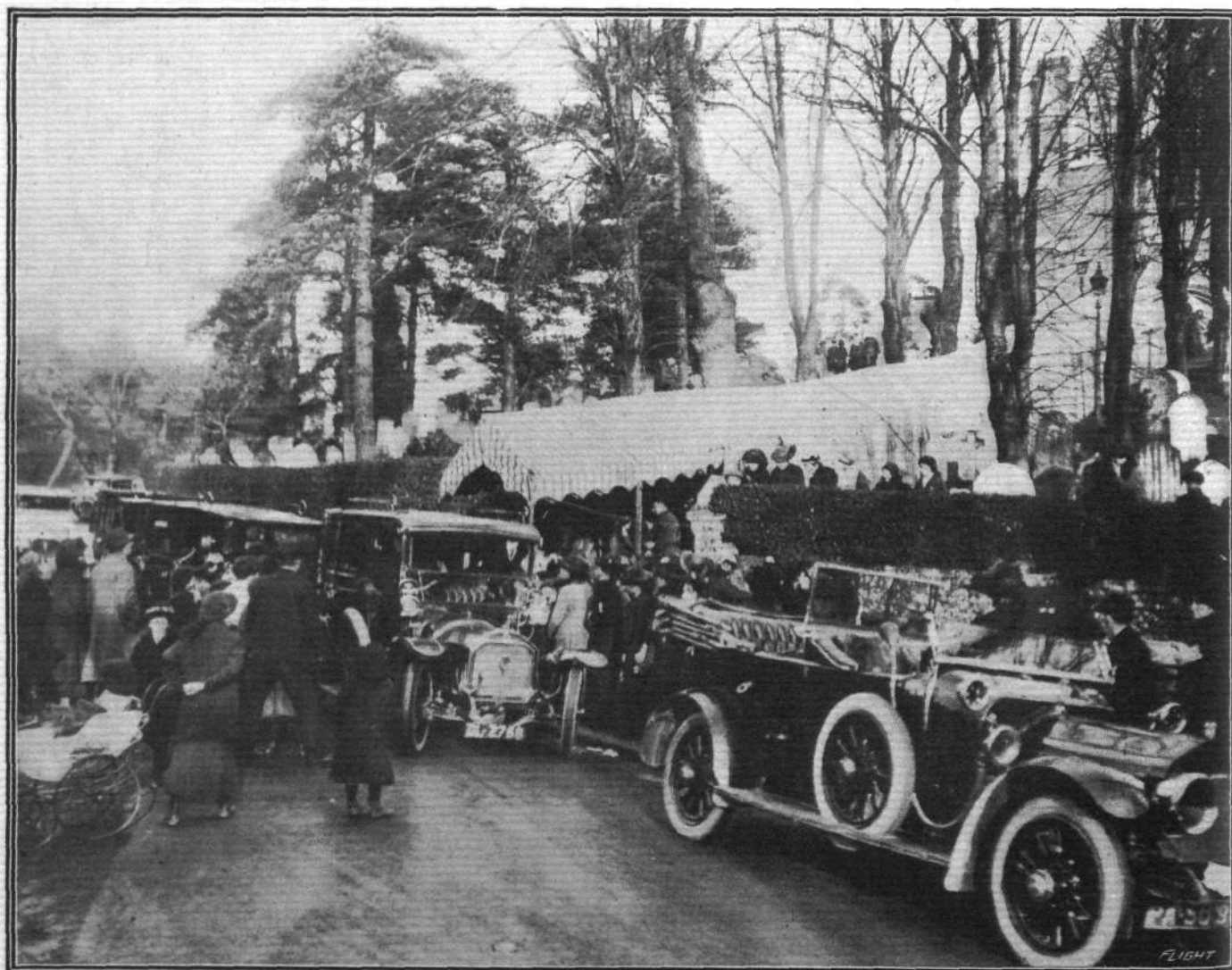
"I find it hard to keep out of the war zone. Last week-end I was resting—on doctors' orders—at a little watering place on the South of England coast. The quietness and stillness of the day was suddenly disturbed by the approach of two hostile aeroplanes that flew directly over the house where I was stopping.

"The hour of arrival was one o'clock, and although British aviators had been patrolling the sky all morning—I counted seven at 12 o'clock—there was not one defender of the air up when the enemy arrived. I heard afterwards that they were all having lunch

at the aerodrome. It seems to be an extraordinary thing that one or two should not have been on duty at the luncheon hour. It was very exciting to witness the shelling of the hostile aircraft from Dover. We could distinctly see the shells burst in the air, although they never got within range of their objective. At the end of half an hour two of our fast machines got up, but, alas! it was then too late, as the Taubes had taken a hurried departure.

"The day was delightfully clear and calm, and I have no hesitation in saying if we had arranged our aerial defence on the relay system neither of the German aviators would ever have got away. I should say that the Germans came over just to see what kind of defences we had got, or else as the forerunner of a Zeppelin attack. If what I witnessed can be taken as a sample of our air defences, I fear the whole organisation is sadly lacking in 'brains.' After all, what is the use of having daring men, and fast machines, if at the critical moment they are not at the post of duty when the enemy arrives? I fear they do these things much better in Germany."

Truly, judging by the above, it is about time *somebody* was put in sole control of our air organisation. It might then be explained generally that war is apt to continue during the usual meal hours, however inconvenient it may be to individuals. No doubt some dastardly spy conveyed to the Germans the hour of lunching, and they were mean enough to take advantage of us! Shame.



The wedding of the Honble. Alan Boyle and Miss Julia Hull last Saturday at St. John's, Redhill.—The general scene outside the church. The bridegroom, who is now an officer attached to the Royal Flying Corps, will be remembered as one of the early pioneer flyers in this country, he coming near to giving up his life for the art at the Bournemouth meeting.

The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 1st inst. :—

Wing Commander S. F. Lambe granted the rank of Acting Captain, with seniority of Jan. 29th.

Lieut. H. C. Arnold-Forster (emergency) to "President," additional, for Admiralty. Jan. 31st.

G. G. R. Fraser, entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Jan. 21st, and appointed to "President," additional.

The following appeared among the Admiralty announcements of the 2nd inst. :—

Flight-Lieut. W. C. Michie, to "President," additional, for Air Department, Admiralty. Feb. 1st.

R. W. Frazier, granted a temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of Feb. 1st, and appointed to "President," additional, for R.N.A.S.

Temporary commissions have been granted with seniority as follows:

Lieutenants (R.N.V.R.): E. F. Halsted, Feb. 1st, and appointed to "President," additional, for transport duties; J. C. Savage, J. B. Beal and R. C. Ward, Feb. 1st, and all appointed to "President," additional, for R.N.A.S.

Sub-Lieutenants (R.N.V.R.): C. K. Chandler, Feb. 1st, and appointed to "President," additional, for R.N.A.S.; C. G. Baker, F. Jones and J. M. Young, all Feb. 1st; L. J. Russell, F. C. Robinson and J. N. Brown, all Feb. 10th.

The following appeared among the Admiralty announcements of February 4th :—

Commander C. R. Dane, R.N., graded as Wing-Commander, and appointed to the "President," additional, for R.N.A.S. To date Dec. 16th.

W. C. Grant granted a temporary commission as Lieutenant, R.N.V.R., and appointed to the "President," additional, for R.N.A.S. To date Feb. 3rd.

The following have been appointed to the "President," additional, for R.N.A.S., to date as mentioned: Lieut. R.N.V.R., Viscount Tiverton, Feb. 3rd; Temporary Lieut. R.N.V.R., A. H. Peacock, Feb. 7th; and Sub-Lieut., R.N.V.R., A. J. Currie, Feb. 3rd.

The undermentioned have been entered as Probationary Flight Sub-Lieutenants for temporary service, and appointed to the "President," additional, for R.N.A.S., to date as stated: Lieut., A.S.C., D. R. Baylis, Feb. 3rd; E. V. Reid, Jan. 10th; C. B. de T. Drummond, Jan. 12th; R. Collishaw, Jan. 10th; J. A. Shaw, Jan. 1st, W. E. Robinson, Dec. 27th, 1915; L. S. Breadner, Dec. 28th, 1915; P. S. Kennedy, Dec. 27th, 1915; W. H. Chisham, Jan. 3rd.

The following have been granted temporary commissions as Sub-Lieutenants (R.N.V.R.), and appointed to the "President," additional, for R.N.A.S., all to date Feb. 3rd: D. P. Rowland, W. S. Anderson, and A. O. Jones.

The following appeared among the Admiralty announcements of Feb. 5th :—

H. K. Paton entered as Temporary Lieutenant (R.N.V.R.), and appointed to the "President," additional, for R.N.A.S. To date Feb. 4th.

E. V. King-Hall and C. H. Waghorn entered as Temporary Lieutenants (R.N.V.R.), and appointed to the "President," additional, for R.N.A.S. To date Feb. 4th.

The undermentioned have been entered as Probationary Flight Sub-Lieutenants for temporary service, and appointed to the "President," additional, for R.N.A.S., to date as stated: K. R. Munro, Feb. 4th; H. W. Eades, Dec. 30th, 1915; and F. P. Collins, Jan. 7th.

The following appeared among the Admiralty announcements of the 7th inst. :—

Wing-Commander R. C. S. Hunt, to "President," additional, for duty in the Air Department. Feb. 6th.

Royal Flying Corps (Military Wing).

THE following appeared in the *London Gazette* of the 1st inst. :—

Flying Officers.—Second Lieut. David M. Tidmarsh, Royal Irish Regt., Special Reserve, and to be seconded; Jan. 13th, 1916.

Capt. G. A. C. Cowper, 8th Infantry Batt., Australian Imperial Forces; Jan. 14th, 1916. Jan. 15th, 1916: Lieut. Cyril W. Battye, Princess Charlotte of Wales's (Royal Berkshire Regt.), and to be seconded. Second Lieut. Lewis W. Hall, Border Regt., and to be seconded.

Assistant Equipment Officer.—Capt. William E. G. Statter, King's Own (Royal Lancaster Regt.), and to be seconded. Jan. 11th, 1916.

Supplementary to Regular Corps.—The date of appointment of Second Lieut. (on probation) Robert K. Muir, is Dec. 13th, 1915, and not as stated in the *Gazette* of Jan. 17th, 1916. The date of appointment of Second Lieut. (on probation) Ernest Duveen, is Dec. 13th, 1915, and not as stated in the *Gazette* of Jan. 14th, 1916. Second Lieut. (on probation) Herbert A. Johnston is confirmed in his rank. To be Second Lieutenants (on probation): Hugh H. McL. Fraser; Dec. 8th, 1915. Jan. 10th, 1916: Vyvyan P. Spurway and Geoffrey C. Burnand. Cecil R. Fry; Feb. 1st, 1916.

The following appeared in a supplement to the *London Gazette* issued on the 2nd inst. :—

Attached to Headquarter Units.

Brigade Commander.—Lieut.-Col. Edward B. Ashmore, C.M.G., M.V.O., Royal Artillery, from a Wing-Commander, Royal Flying Corps, and to be Temporary Brigadier-General whilst so employed. Jan. 30th, 1916.

Establishments.

Squadron-Commanders.—From Flight-Commanders; Jan. 17th, 1916: Maj. Rudolph E. T. Hogg, C.I.E., 38th King George's Own Central India Horse, Indian Army. Maj. John R. C. Heathcote, Queen's Own Cameron Highlanders. And to be Temporary Maj. whilst so employed: Capt. J. C. Halahan, Reserve of Officers. Capt. Leonard Dawes, Duke of Cambridge's Own (Middlesex Regt.). Capt. Thomas W. C. Carthew, D.S.O., Bedfordshire Regt., Special Reserve. Capt. Alexander Shekleton, Royal Munster Fusiliers. Lieut. (Temporary Capt.) Lance G. Hawker, V.C., D.S.O., R.E.; Jan. 22nd, 1916. Jan. 31st, 1916: Lieut. (Temporary Capt.) Leslie Da C. Penn Gaskell, Norfolk Regt. Capt. Ernest F. Unwin, A.S.C.

Memorandum.—Pioneer Herbert G. H. Stewart, from R.E., to be Temporary Second Lieutenant for duty with the Royal Flying Corps. Dec. 7th, 1915.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: Edward G. Landon, John V. Nash and Alexander T. Watson.

To be Second Lieutenants (on probation): Felix C. Rowe; Jan. 10th, 1916. Harold L. Saunders; Jan. 28th, 1916.

Special Reserve of Officers.—To be Second Lieutenants: Henry J. Poole; Dec. 22nd, 1915. Ernest W. Bowen; Dec. 22nd, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 3rd inst. :—

Flight Commanders (from Flying Officers, and to be Temporary Captains whilst so employed).—Jan. 12th, 1916: Temporary Second Lieut. T. S. Impey, General List. Second Lieut. H. V. Champion de Crespigny, Suffolk Regt., and to be seconded. Second Lieut. Denys C. Ware, the King's (Liverpool Regt.); Jan. 13th, 1916. Capt. George Henderson, 38th King George's Own Central India Horse, Indian Army; Jan. 19th, 1916. Temporary Capt. W. Milne, General List; Jan. 20th, 1916. And to be Temporary Captains whilst so employed: Lieut. A. Payze, Special Reserve; Jan. 20th, 1916. Jan. 23rd, 1916: Temporary Second Lieut. P. G. Ross-Hume, General List; Second Lieut. Kelham K. Horn, Special Reserve. Temporary Second Lieut. H. S. Shield, General List (now Second Lieut. Prince of Wales's (North Staffordshire Regt.)); dated Jan. 24th, 1916, and to be seconded from Jan. 30th, 1916.

Flying Officers.—Jan. 18th, 1916: Lieut. W. R. S. Humphreys, 5th Batt., Canadian Infantry; Second Lieut. (Temporary Lieut.) Denis P. B. Taylor, 3rd (King's Own) Hussars, and to be seconded; Second Lieut. W. Brass, Surrey (Queen Mary's Regt.) Yeomanry (T.F.); Second Lieut. G. H. Birley, Queen's (Royal West Surrey Regt.) (T.F.); Temporary Second Lieut. R. C. Stoddard, Prince of Wales's Vols. (South Lancashire Regt.), and to be transferred to the General List; Temporary Second Lieut. W. N. Thomas, King's (Shropshire L.I.), and to be transferred to the General List; Second Lieut. G. H. McLachlin, Special Reserve; Second Lieut. Herbert

A. Johnston, Special Reserve; Temporary Lieut. G. W. Hodgkinson, 2nd County of London (Westminster Dragoons) Yeomanry (T.F.); Jan. 19th, 1916.

Wing-Adjutant.—Lieut. David S. Jillings, Prince of Wales's Own (West Yorkshire Regt.), from a Flying Officer, and to be Temporary Captain whilst so employed. Jan. 25th, 1916.

Assistant Equipment Officer.—Second Lieut. (Temporary Lieut.) R. G. Burder, A.S.C., Special Reserve, from a Flying Officer, and to relinquish his temporary rank; Jan. 15th, 1916.

Supplementary to Regular Corps.—Second-Lieut. (on probation) G. H. McLachlin is confirmed in his rank.

The following appeared in the *London Gazette* of the 4th inst. :—

Date of undermentioned appointments Jan. 12th, not as in *Gazette* Feb. 2nd : Squadron-Commanders from Flight Commanders: Maj. R. E. T. Hogg, C.I.E., 38th K. G. O. Cent. Ind. H. I.A.; Maj. J. R. C. Heathcote, Cameron H. And to be Temporary Maj. whilst so employed: Capt. J. C. Halahan, R. of O.; Capt. L. Dawes, Middx.; Capt. T. W. C. Carthew, D.S.O., Beds., S.R.; Capt. A. Shekleton, R. Munster F.

Flying Officers.—Oct. 21st: Second Lieut. R. C. L. Holme, Som. L.I., and seconded; Capt. K. E. Kennedy, Can. Art.; Temporary Lieut. W. E. G. Murray, H.L.I., and transferred to General List; Capt. M. G. Lee, 40th Pathans, I.A.; Lieut. G. D. Hill, 7th Hrs., and seconded; Temporary Capt. R. H. Austin-Sparks, R.A., and transferred to General List; Lieut. G. R. E. liott, 3rd Dgn. Guards, and seconded; Capt. L. Prickett, R.A., and seconded; Lieut. J. Nichol, R. Scots F., and seconded; Temporary Lieut. A. J. Evans, General List; Second Lieut. E. W. Leggatt, Wilts., and seconded; Temporary Second Lieut. A. Ellison, General List; Temporary Second Lieut. H. H. Watkins, R.A., and transferred to General List; Second Lieut. G. J. L. Welsford, Middx., and seconded; Temporary Lieut. G. Graham, General List; Lieut. H. B. Russell, R.A., and seconded; Temporary Second Lieut. J. K. Summers, General List; Lieut. R. H. Marshall, Northants., S.R., and seconded; Second Lieut. R. L. Chidlaw-Roberts, Hants, and seconded; Lieut. T. E. Longridge, A.S.C.; Lieut. N. A. Browning-Paterson, R.A., and seconded; Second Lieut. C. H. Tayler, I.A., R. of O.; Temporary Lieut. E. L. Foot, Ox. and Bucks L.I., and transferred to General List; Temporary Second Lieut. H. F. C. Cannell, R.E., and transferred to General List; Second Lieut. A. H. Goldie, Beds., and seconded.

The following appeared in a supplement to the *London Gazette* issued on the 5th inst. :—

Flying Officers.—Nov. 22nd: Temporary Lieut. A. J. Child,

London (T.F.); Lieut. G. Alchan, R.F.A., S.R. Nov. 27th: Temporary Lieut. J. M. E. Shepherd, Rifle Brig., and transferred to General List; Second Lieut. A. R. L. Goodson, London (T.F.); Lieut. A. F. Baker, D.C.L.I., S.R., and seconded, Dec. 15th; Capt. C. L. M. Scott, N. Staffs., S.R., and seconded, Jan. 2nd. Jan. 18th: Lieut. E. W. Farrow, Motor Mach. Gun. Serv., Can. Art.; Second Lieut. (Temporary Lieutenant) T. L. Purdom, K.O.S.B. (T.F.). Jan. 20th: Lieut. J. A. G. De Courcy, R.A., and seconded; Temporary Lieut. J. M. M'Alery, R. Irish R., and transferred to General List; Second Lieut. E. H. Grant, A. and S. H., and seconded; Temporary Second Lieut. H. C. Hopkinson, Shrops. L.I., and transferred to General List; Lieut. H. W. Von Poellnitz, Lincs., and seconded; Lieut. C. J. Hart, Worcs., S.R., and seconded; Temporary Second Lieut. S. W. Price, attached Leics., and transferred to General List; Temporary Second Lieut. H. F. Mase, Norfolk, and transferred to General List; Temporary Second Lieut. C. R. Cook, Northants., and transferred to General List; Second Lieutenant G. W. P. N. Burden, E. Lancs., and seconded; Second Lieut. J. V. Nash, S.R.; Second Lieut. A. T. Watson, S.R. Jan. 22: Second Lieut. G. MacD. Turner, Yorks. (T.F.); and Second Lieut. E. G. Landon, S.R.

Memoranda.—To be Temporary Second Lieutenants for duty with Royal Flying Corps: Pte. D. W. Clappen, London (T.F.). Oct. 23rd. Sgt. F. G. S. Williams, R.N. Devon Yeo. Nov. 22nd. Cpl. M. L. Taylor, R.E. Dec. 29th.

The following appeared in a supplement to the *London Gazette* issued on the 7th inst. :—

Attached to Headquarter Units.

Staff Captain.—Lieut. A. G. R. Garrod, Leicestershire Regt., Special Reserve, from a Flying Officer, vice Second Lieut. W. L. Birch, Prince of Wales's Own (West Yorkshire Regt.) (T.F.).

Establishments.

Flight-Commanders.—From Flying Officers: Capt. A. G. Moore, Manchester Regt., Special Reserve; Capt. C. R. S. Bradley, 4th Cavalry, Indian Army. Jan. 27th.

Memorandum.—Corpl. Harry G. Smart, from Royal Engineers (T.F.), to be Temporary Second Lieutenant, for duty with the Royal Flying Corps. Nov. 30th, 1915.

Supplementary to Regular Corps.—Capt. Hon. William F. F. Sempill (Master of Sempill) relinquishes his commission on appointment to the Royal Naval Air Service. Jan. 1st, 1916.

Second Lieut. (on probation) Alfred W. Briggs is confirmed in his rank.

To be Second Lieutenants (on probation): Arthur H. L. Beale; Jan. 17th, 1916. Arthur E. Oxley; Feb. 3rd, 1916.

AIR RAID DAMAGE AND INSURANCE.

A MEETING of representatives of local authorities was held at the Mansion House, on February 4th, to consider the Government scheme of insurance against damage by hostile aircraft and bombardment.

The Lord Mayor, who presided, said that while no doubt the Government scheme had been a great boon and a relief from anxiety in many cases, it acted unequally and unfairly on the inhabitants of particular districts which were being imperilled by these detestable air raids.

After some discussion the following resolution, proposed by Councillor F. Henderson (Norwich), and seconded by Alderman Allen (Croydon), was unanimously passed :—

"(a) That a deputation be formed to wait upon the President of the Board of Trade to urge upon him the views of the local authorities represented at this meeting, which are contained in the following resolution :

"That inasmuch as many of those parts of the country, particularly on the East Coast, in which the risk of damage by hostile aircraft and bombardment, and the consequent need for insurance are greatest, have already suffered, and are likely to suffer, severe financial loss and depression in consequence of the war; and many of the inhabitants of those districts are so impoverished thereby as to be quite unable to pay the premium for such insurances, this Council is of opinion that the Government scheme is unfair in its incidence, and constitutes, in effect, a special war tax on those who are least able to bear it. And this Council most strongly urges upon His

Majesty's Government that the expense of such damage should be borne nationally out of the Imperial revenue."

"(b) That the President of the Board of Trade be asked to receive such deputation from this meeting in support of the above resolution."

Sir R. Robinson, formerly Chairman of the London County Council, said he thought the Government would afford the relief desired if the case were put before them. It was their duty to do so. It was the duty of all districts to share in the losses from war.

Fifteen representatives were then elected to form the deputation.

While in sympathy with the object of this movement, as we have repeatedly pointed out in these columns, we feel that the time for the Government Insurance Scheme to be dropped has gone past, and that it would be better rather for agitation to be directed to urging the Government to reduce the premium to 6d. per cent. at the expiration of the first year, by which time experience will probably have proved the present rate to be excessive. This concession would then, no doubt, largely meet the case. In the meantime a huge amount of premiums must have been raked in, following the recent raid. So many deemed themselves as outside the raid zone that insurance never bothered them. Now there will be very few towns in England where for the future the inhabitants will consider themselves as completely safe, and the Government scheme should, therefore, prosper correspondingly, and more than justify the lowering of the premium.

The Roll of Honour.

THE Secretary of the Admiralty has announced the following casualty :—

Under date January 20th :

Wounded.

Second Lieutenant Reginald H. Sawyer, R.M., R.M.A., Anti-Aircraft Brigade.

The following casualties in the Expeditionary Force have been reported from General Headquarters :—

Under date January 24th :

Wounded.

2341 Corporal C. Nott, Royal Flying Corps.

Undated :

Wounded.

Captain W. D. S. Sanday, Royal Flying Corps

A "POPULAR" TYPE AEROPLANE DESIGN.

By C. M. POULSEN.

(Continued from page 96.)

IN our last issue we arrived at the result that with the design as got out up till then there would be a thrust-resistance couple of a magnitude of 149.26 ft./lbs., and that this couple would have to be counteracted in some way, either by raising the line of thrust or by placing the wings so that the centre of lift was behind the centre of gravity a distance sufficient to form a weight-lift couple equal and opposite to the thrust-resistance couple. If the latter is chosen, it will mean that when the engine is switched off and a glide commenced the centre of pressure, by travelling back will further increase the weight-

obtain a weight-lift couple of 77.01 ft./lbs. or a little over as it is desired to carry a slight negative load on the tail plane.

In the accompanying sketch the suggested position of the wings is shown. As the position of the centre of pressure at 2° incidence is 0.425 of the chord from the leading edge, we mark off this point on each of the wings and connect these two points by a line. Somewhere on this line is the position of the resultant reaction on the wings. Since, however, the upper wing carries a greater load than does the lower, we mark off the position of the

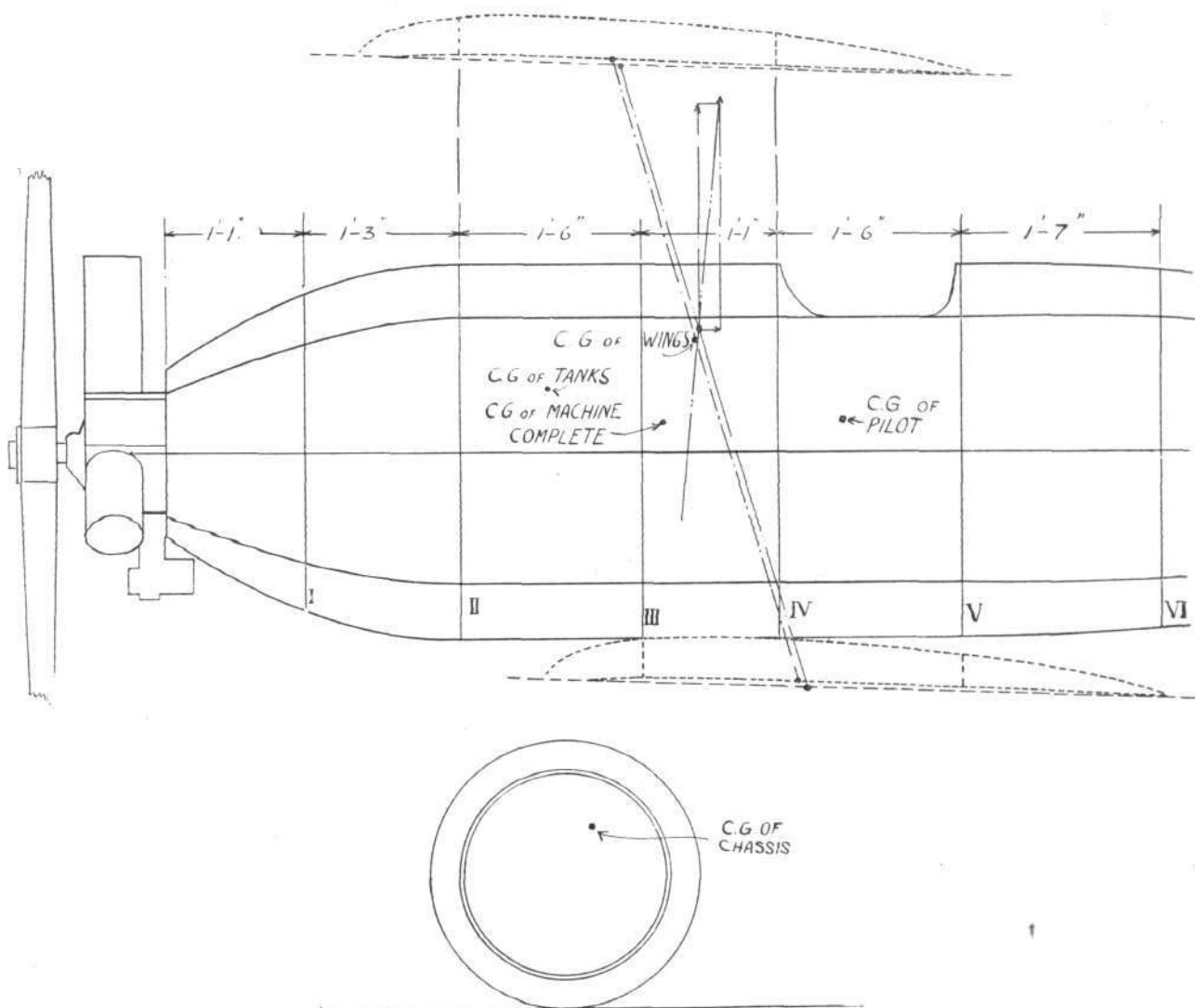


Diagram showing new position of front formers and method of finding relative positions of centre of gravity and centre of pressure.

lift couple, which might reach an undesirable magnitude necessitating a very considerable negative load on the tail plane and elevator. It would, therefore, be better to raise the line of thrust, or, what amounts to the same, lower the line of resistance. If the gap be kept the same as before and the two wings lowered so as to bring the lower one below the bottom of the fuselage, the centre of resistance of the wings will be lowered approximately one foot, the thrust-resistance couple thereby being reduced to 77.01 ft./lbs., which is no more than can be easily taken care of by suitably arranging the wings in the fore-and-aft direction, that is to say so placing them as to

resultant $4/7$ of the connecting line measured from the chord of the lower wing. Through this point are drawn vertical and horizontal lines on which are measured off to some suitable scale the lift and drift respectively of the wings. The resultant of this rectangle is, of course, the resultant reaction on the wings. For the centre of gravity of the wings it will not be far wrong if this is taken as lying on a line connecting the centres between the front and rear spars. As the top plane will be somewhat heavier than the lower the c.g. may be guessed as lying a little above the middle of this connecting line. As it happens this c.g. almost

coincides with the combined centre of lift of the two planes, which is an advantage inasmuch as any deviation from the estimated weight of the wings will not affect the balance but only the loading. The centre of gravity of the chassis has been taken as lying a little above and to the rear of the wheel axle. We are now in a position to calculate the position of the centre of gravity of the whole machine, and also the centre of pressure. This is set out in the accompanying table, from which the position of the c.g. is obtained—i.e., 4.07 ft. from the engine plate. The reaction on the wings is found to lie about $2\frac{1}{2}$ ins. further back, giving a lift-weight couple of 158.6 ft./lbs. sufficiently greater than the thrust resistance couple to give a slight negative load on the tail.

With the greater chord and consequently greater distance between the spars the position of the formers in the front of the body has had to be altered, and this

Table for Horizontal c.g.

Item.	Weight (lbs.).	Distance from Engine Plate (ft.).	Moment.
Body ...	543	4.00	2172
Chassis ...	47	3.42	160.7
Wings ...	200	4.30	860
Tail skid ...	3	13.30	39.9
Total ...	793	—	3232.6

Position of c.g. $\frac{3232.6}{793} = 4.07$ ft. from engine plate.

new position is indicated in the sketch on previous page. Former No. VI and all formers aft of it remain as before, whereas the position of formers No. I, II, III, IV and V will be as shown.

In order to see if the centre of gravity of the complete machine coincides with the centre of thrust, the vertical position of the c.g. must be found, and for the centre of moments the centre line of the fuselage should be chosen, which is, in our design, also the line of thrust. Of items whose centre of gravity do not lie on this centre line there are only the chassis, the tanks, the wings, and the pilot, since the fuselage is symmetrical and the tail skid and rudder may be taken with sufficient accuracy to counteract one another, the c.g. of the rudder being slightly above the centre line and the c.g. of the tail skid slightly below it. We can, therefore, set out in tabular form the calculation for vertical position of c.g., and from this table we see

that the c.g. is situated $\frac{(267 - 141)}{497} = 0.25$ ft. above the

c.l. As the thrust should go through the centre of gravity or slightly below it this position may be considered satisfactory.

The final estimate to be made before we can be certain of the balance of the machine is that for amount of dihedral angle. This should be so proportioned that when the machine is tilted laterally by a gust or some other cause the fin area presented by propeller, engine, body, chassis, struts, wings, and tail surface shall have its centre of pressure slightly above the c.g. of the machine. Without model figures of the complete machine for various angles of yaw, however, there is little use in calculating the projected side area of the various items mentioned above, since we do not know what percentage of pressure on normal plane to allow for each, this percentage varying according

Table for Vertical Centre of Gravity.

Item.	Weight (lbs.).	Vertical Distance from Centre Line of Body.	Moment (+).	Moment (-).
Fuel and tanks ...	90.00	+0.50	45	—
Pilot ...	160.00	+0.25	40	—
Wings ...	200.00	+0.91	182	—
Chassis ...	47.00	-3.00	—	141
Total ...	497.00	—	267	141

to the shape of individual items. Since the c.g. of machine complete lies slightly above centre line of fuselage, we are almost certain to require a certain amount of dihedral, and for the present it will probably be near enough to set the tip of the wings a foot higher than the root. After all, if it is found that an alteration is necessary this can be accomplished without great trouble or expense by lengthening two of the bracing wires in the wings and shortening the other two.

Having now checked the machine for balance the actual detail design can be commenced, and here one of the first alterations from the original design will be that necessitated by having a 5 ft. instead of a 4 ft. chord, and by placing the lower wing right underneath the fuselage instead of just above the two lower side members. This and other problems of construction will be dealt with in our next issue.

(To be continued.)



EXCEPTIONALLY fine weather brought out many machines and many visitors to Hendon last Saturday afternoon. Although there was a peculiar bumpiness in the air, it was by no means unfavourable, and so there was plenty of flying exhibitions, passenger flights, and school work. Many of the Hendon pilots were out, R. Kenworthy on the 50 h.p. Beatty-Wright, J. H. Moore on his 50-55 h.p. biplane, Marcus D. Manton and M. Osipenko on 60 h.p. G.W. 'buses being most in evidence. During the afternoon a most imposing scene was witnessed, when about

a dozen machines were up in the air together. These were practically all Service machines, and were made up as follows: Two B.E.2 C's, two Avros, two Maurice Farman "short-horns," one Maurice Farman "long-horn," one Henry Farman, one G.W. biplane (H.F. type), and one Martinsyde scout. They all went up one after the other, and after circling round the aerodrome for some considerable time, made off for their various destinations. Sunday, by way of a change, it rained and blew so badly that flying was out of the question.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

SPECIAL COMMITTEE MEETING.

A SPECIAL MEETING of The Committee was held on Tuesday, the 8th inst., when there were present:—Prof. A. K. Huntington, in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Col. Sir Capel Holden, K.C.B., F.R.S., Commander C. R. Sauson, and the Assistant Secretary.

Election of Members.—The following New Members were elected:—

John Blackwood.
Second Lieut. Gerard Allen Crane, R.F.C.
Sir William Crookes, O.M., F.R.S.
Second Lieut. Wilfrid Henry Furlonger, R.F.C.
Lieut. The Hon. Michael Knatchbull Hugessen, R.H.A. (att. R.F.C.).
Second Lieut. Basil Hallam Radford, R.F.C.

Annual General Meeting.—It was decided to hold the Annual General Meeting on Tuesday, March 28th, 1916.

THE FLYING SERVICES FUND

administered by

THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

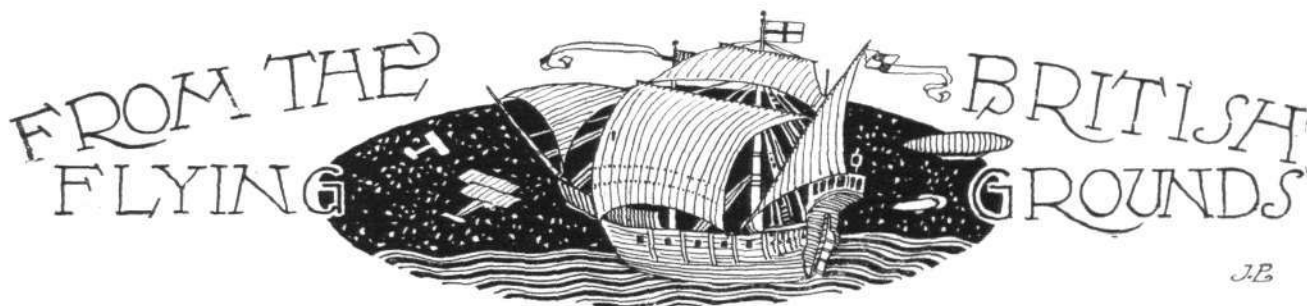
	£	s.	d.
Total subscriptions received to Feb. 1st, 1916 ...	10,436	6	11
Collected at the Westland Aircraft Works, Yeovil (Eighteenth contribution) ...		0	10 8
H. A. Martin Finn ...		0	5 0

Total, February 8th, 1916 ... 10,437 2 7

166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

Extension of the Hours of Opening the Club.

The Club is now open from 9 a.m. to 10.30 p.m. each day, including Sunday.



London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School (R.N.A.S.).—Straights with instructor last week: Probationary Flight Sub-Lieuts. Carr, Gibbs, How, Powles and Wigglesworth. Circuits and eights: Probationary Flight Sub-Lieuts. Aitkin, Colquhoun, Evans, Jones, Kingsford, Rees, Templeton and West. Circuits and eights alone: Probationary Flight Sub-Lieut. Cook.

Brevets during week: Probationary Flight Sub-Lieuts. Cuckney, Durston and Rampling.

Grahame-White Civilian School.—Straights with instructor: Messrs. Barager, Barret, Box, Eichelbrenner, Hillaby, Holman, Sandys, Scheidt, Stapley, Walk, Williams F., Williams S., Kryn, Hathaway, Spencer and Butler. Eights alone: Mr. Howe.

Brevets during week: Messrs. Hillaby and McClaughry. Instructors during week: Messrs. Biard, Hale, Pashley, Manton, Russell and Winter.

Beatty School.—The following pupils were out during last week: Messrs. Aoyong, Baldwin, Baker, Brand, Branford, Byrne, Collier, Cumming, d'Allesina, Dunne, Edwards, Jaquin, le Champion, Markham, Martin, Mattos, Mossop, Richard, Samter, Schollaert, Scott, Thompson, Halford-Thompson, Wainwright, Whincup,

Williams, Willmet, Young, Parsons, Hungwan, Roberts, Knox, Smith, Brewerton, Phillips and Stanley.

The instructors were: Messrs. G. W. Beatty, W. Roche-Kelly, R. W. Kenworthy, G. Virgilio, A. E. Mitchell and L. L. King, the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes and Caudron tractor biplanes.

Certificates were taken during the week by Messrs. Brynildsen and Stampe and Lieut. Symington.

Four passenger flights were taken.

Hall School.—Last week pupils with C. M. Hill and H. F. Stevens: Messrs. Redford, Ridley, Sepulchre, Ormerod, Evans, Smith, Dresser, Nicolle, and Cook. With J. Drew: Messrs. Millburn, Woolley, Lieut. Cooke, Neal, Thom, Chapman, and Collins. With A. Chave: Rayne, F. Smith, Rochford, Mahaney, Warsick, Rand, and Hucklesby.

Machines in use: Hall Government type tractors.

The following pupils should shortly go for their certificates: Redford, Ridley, Nicolle, Evans, and Sepulchre.

London and Provincial Aviation Co.—Pupils having practice during last week: Messrs. Palethorpe, de Goussencourt, Vilain XIII, Brown, Scott, Moore,

Houba, Ledure, Clement, Aldous, Creaghan, Foley, Egelstaff, Dawson, Pulford, and Darwin.

Instructors: Messrs. W. T. Warren, M. G. Smiles, H. Sykes, C. Jacques, and W. T. Warren, Jun.

Machines in use: Tractor biplanes.

Ruffy-Baumann School.—Pupils with instructor last week: Messrs. Avenbeke, D'Opstael, Muspratt, Durand, Edgar, Winter, Whitaker, Hoskyn, Dobson, Hamtiaux, Cox, Yiule, Laidlaw, Bolton, Cuthbertson, Wood and Flanders. Doing straights or circuits: Hamtiaux, Thomsen, D'Opstael and Laidlaw.

Machines in use: 60 and 50 h.p. Ruffy-Baumann biplanes and 50 h.p. Caudron-type biplanes.

Certificate taken by Mr. Vernon, who performed his tests with discretion.

Instructors: Edouard Baumann, Felix Ruffy, Ami Baumann and Clarence Winchester.

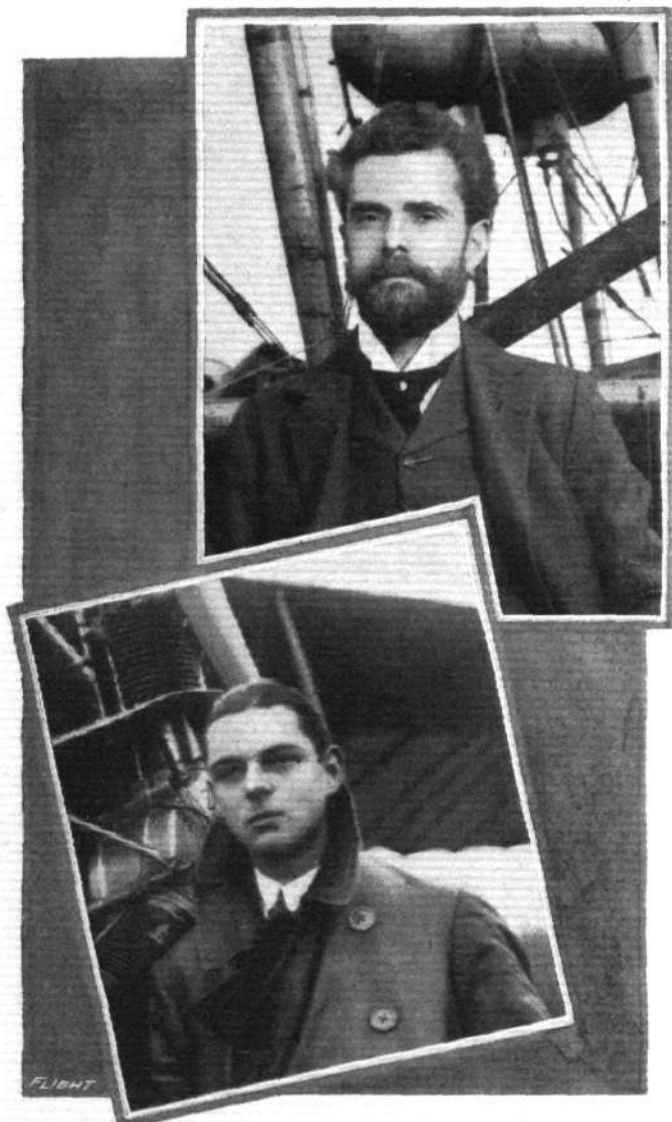
Bournemouth School.

PUPILS doing rolling last week: Messrs. Smith, O. Wilson, J. Wilson, Morley, Devos, W. Mouton and G. Mouton. Straights alone: Messrs. Dubois, Bonnevie, Meens and Simpson.

Instructors: Messrs. F. King and J. G. Woodley.

Three Caudron machines in use.

The early part of the week the weather was ideal and a busy one for the Bournemouth School. For instance, on January 31st, one 35 h.p. rolling and straights 'bus, apart from other machines, put in no less than 6 hours 11 minutes actual tuition, not counting changing of pupils, filling up, &c.



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators. LIKE FATHER, LIKE SON.—Mr. Hugh Lewis and his son, Second Lieut. G. H. Lewis, who have qualified at Hendon.

YET another well-known pilot has joined the ranks of the loopers in the person of Mr. W. Roche-Kelly, who has been associated with the Beatty School of Flying for some considerable time. His first loop was made some four Sundays ago when he piloted, for the first time I believe, the 50-55 h.p. Anzani-Beatty-Caudron. He took the little 'bus over very neatly, repeated the performance the following Tuesday, and again on Saturday week. These loops were done "all on the quiet," and so passed more or less unnoticed, for Roche-Kelly is about one of the most modest pilots I have come across, albeit he is an equally proficient one. I wish, therefore, to take the opportunity of putting on record at least one appreciation of his work.

x x x

"It's in the family" is a term, it appears, that will soon be applied to flying as much as anything else. I have just come across one case, at any rate, in Mr. Hugh Lewis and his sons. Mr. Lewis, although nearly 50 years of age, and a busy man in "the City," has recently been utilising the hours before breakfast and the week-ends in learning to fly. He has elected to "do his bit" in this way in order that, should the necessity arise, his experience so gained may be at the service of the country. He took his "ticket" at the Grahame-White School on January 14th last, and his son—Second Lieutenant G. H. Lewis—obtained his on November 27th at the London and Provincial School, and is now in the R.F.C. Another son, who has been invalided from active service, is, I understand, being seconded to the R.F.C.; whilst a younger son is often to be seen at Hendon during his holidays not only *watching* the flying, but partaking of passenger flights! Preparing for the future, no doubt. SOME family! but just the sort we want nowadays. So here's all prosperity to them.

x x x

The new aerodrome at Bournemouth appears to be in great favour with the God of the winds, as I hear that his lordship is a very rare visitant. Fog also is almost unknown, so pupils are able to get in a maximum of practice in a minimum of time. Bournemouth looks like coming into its own again.

ÆOLUS.



Cats and Zeppelins.

I DO not accept as an established fact everything I hear, but I am prepared to believe that there are more ways than one of killing a cat. It may be true also, for aught I know, that a cat has nine lives, in which case it is a wise provision of providence that there should be a plurality of methods whereby poor pussy may be induced to make a more or less graceful exit from this world of care.

To be provided with a brick, and sent to explore the bed of the Thames, may serve very well for one exodus, but if repeated nine times it is apt to become monotonous. Likewise to be run over in the muddy street by a motor-bus is all very well for the final act after having been drowned, poisoned, shot, hanged, among a few other pleasantries, but it is a method which requires too much straightening out on the part of the cat, to come earlier in the rotation.

Only once in my life have I tried my hand at helping pussy over the dark border, and then I failed. Possibly I did not follow methods in their proper sequence, and should have tried the string and keyhole procedure, but as the shortest route, and having had to do it whilst my blood was up, I chose a cocoanut stick with a knob on the top about the size of an ostrich egg, and although I did not do any material damage to the cat, I broke a few things, and bent what I did not break.

Apart from the string and keyhole method being a long business, it is not always convenient. When you've got the string, you can't find a keyhole, and when you've got both, you can't find the cat. The cat, also, even provided one gets all three necessities together at one place and at one time, is not always inclined to be gracious. Cats, especially strange cats, have a distinct dislike to having a man, who is using bad language, putting string round their neck, and, anyway, it's stupid to try to pull a cat through such a small hole as a keyhole: it can't be done.

Of course, with regard to my particular cat, I could easily have shot it in the garden if I had had a gun, and known how to use it. But that would not have given the cat any chance at all, and it might be thought unenglish to pulverise the poor beast just because it was coming in the direction of my property. And I always like to play the game.

The fact that it had been there many times before, and that I knew of the damage it had done previously, is no proof. It is just possible that it might only have been coming to have a look round, or perhaps simply passing my place on the way to interview another of its kind, and the very least I could have done in that case would have been to have raised my hat and ask politely, "Excuse me, but are you about to make a raid on my studio?"

I must admit that I was partly to blame myself, connived in, and became an accessory before the fact by not having had a broken pane of glass replaced, which would have kept out all cats, but no self-respecting cat would

take advantage of a little thing like that. I am not sure but that there were more than one of them, in which case none of them were right and proper cats, but cats devoid of all kultur. Anyway, they came, and I swore revenge.

Even then I did not want to act precipitately, so sent a polite note to the owner, telling of what would result did he not keep his cat at home. The reply was ambiguous and unsatisfying, so I got out my stick, and prepared to wallow in his gore—I mean the cat's.

I prepared a sliding panel of cardboard to exactly fit the broken window, and had a string from the kitchen which would slide the card along when the enemy had entered. I enrolled myself and the domestic into an anti-catcraft corps, and we used to take turns at watching at night, provided with a shilling bull's-eye lantern. Strange to tell, it fell to me to be on duty on the night of the catastrophe. At the witching hour I saw a long dark body sail gently and quietly through the opening, and slammed the panel tight. Grasping my cudgel I crossed the garden, shut myself in the studio, and switched on the light. The cat was standing on an occasional table, but when it saw me it sat down on its hind quarters, and gazed peacefully at me with eyes full of yearning love. Artfully I played into its hands, so to speak, advanced with death hidden behind me, and words of soothing cadence on my lips. "Poor little pussie," I said, "take that!" "That" would have finished the job, only it happened to get hitched up in a flashlight apparatus hanging from the ceiling, and though it still descended with sufficient force to smash the table to smithereens, the cat had skipped. But I had tasted blood—at least, nearly—and the lust of battle was upon me. With one swinging swoop I cleared the top of a desk of all untidiness, including a rack of negatives (all masterpieces), but again missed my object. Unable to get out through the port of entry, the cat ran up a fine new background costing three guineas, and painted in the Mile End Road. It represented a beautiful seascape with rocks, seen over a terrace, with a nice curtain hanging in the Mediterranean. One sweep of my weapon, and I knocked a hole in the Rock of Gibraltar, big enough to take a dreadnought—comparatively speaking, of course—but missed the cat.

Animals cornered will turn—even cats. This one, seeing all hope of escape gone, went for me.

The next five years, or five minutes, I know not which, I gave over equally divided in slashing and kicking at the cat, and trying to open the door to get out. A happy thought struck me. I manœuvred round and knocked the cardboard out of the window, and the cat took the hint, or I would assuredly have killed it.

A visit next day to the scene of action forced the conviction upon me that cat-killing in a studio was a game in which the cat held most of the trump cards. I should not have minded so much the expense of putting things straight had it not been for the knowledge that the enemy was still at large, and would probably return at will. As

a result, I did what I ought to have done in the first place. I had a sheet of glass put in the window, so preventing any further nocturnal visits.

A day or two later the domestic solved the problem, in her own way, by surreptitiously dropping a brick from her bedroom window on to the sleeping feline. I shall never forget what I owe to that girl for the masterly way she dealt with the matter.

Somewhat analogous, it seems to me, judging by the multitude of elaborate devices set forth in the lay press recently, are the visits of Zeppelins to these shores, and methods of dealing with them. From the idea of huge funnels made of wire-netting to collect the bombs and guide them to safe quarters in the Thames, or other large stretches of water, to having a circle of balloons carrying

contact mines all around London, they are all elaborate, entirely unworkable, exceedingly silly.

I know from experience that letting the cat get into my studio before I commenced operations was quite the stupidest way I could possibly have gone about it, especially in view of the fact that a simple pane of glass on the coast, as it were, would have prevented the nuisance.

I have not the address of that domestic now, nor any data to go upon as to whether she has changed her occupation, but even allowing the impeachment to be true that some of her sex sit in Parliament, I am quite sure she is not there. Were it so, I am certain her womanly instinct would tell her that it were better to kill cats of the Zeppelin breed, afield.

THE "X" AIRCRAFT RAID.

In view of the decision of the Government not to allow details of aircraft raids to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

The following announcements have been officially issued:—

"X17" Raid.

"War Office, 11.25 p.m., Feb. 2nd.

"The utterly inaccurate report in the Berlin official telegram of February 1st, which purported to describe the effects of the German air raid on the night of January 31st, affords a further proof that the raiders were quite unable to ascertain their position or shape their course with any degree of certainty.

"Casualties.—A number of cases of injury, mostly slight, have been reported since the previous figures were issued, and there have been two or three more deaths. The figures now stand as follows:—

	Killed.	Injured.	Total.
Men	33	51	84
Women	20	48	68
Children	6	2	8
Total	59	101	160

"Damage.—One church and a Congregational chapel were badly damaged, and a parish room wrecked. Fourteen houses were demolished, and a great number damaged less seriously by doors, window frames, &c., being blown out. Some damage, not very serious, was caused to railway property in two places; only two factories, neither being of military importance, and a brewery were badly damaged, and two or three other factories were damaged slightly.

"Bombs Dropped.—The total number of bombs discovered up to the present exceeds 300. Many of them fell in rural places, where no damage was caused at all."

"Press Bureau, Feb. 5th.

"With respect to the official German statements relating to the recent raid in England, the War Office announces that the damage to industrial or commercial establishments was as follows:—

"Serious damage was done to three breweries, three railway sheds, one engine shed, one tube factory, one lamp factory, and one blacksmith's shop.

"Minor damage, such as the shattering of glass and doors, occurred at a munition factory, at ironworks in two places, a crane factory, a harness factory, a railway grain shed, a colliery, and a pumping station.

"No docks, no granaries, munition factories, or industrial establishments of any sort other than those mentioned were damaged.

"Some fifteen houses of working-class people were demolished, and a large number of small shops and dwelling-houses were injured, some seriously and many slightly.

"The latest returns of casualties show that 26 men, 28 women, and seven children were killed, and 48 men, 46 women, and seven children were injured.

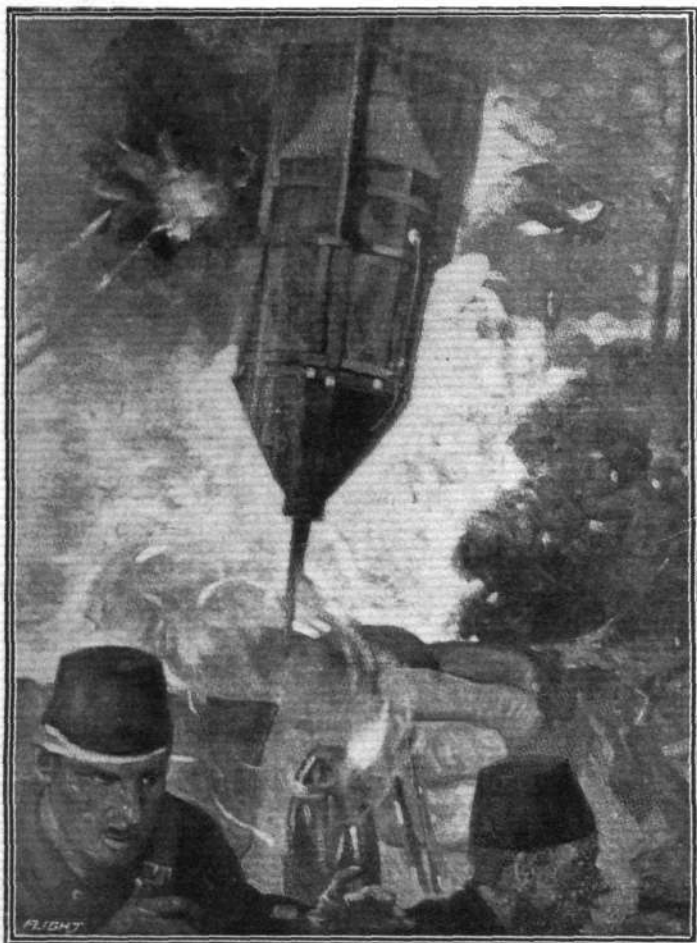
"It is not proposed in future to issue detailed statements of this character, as it is inadvisable to give information to the enemy as to the results of their air attack. On the occasion of this raid, however, in which the largest number, so far, of airships have been employed, this statement of the damage done is given in order to show how unfounded is the claim that the economic life of Great Britain, or its military preparations, can be appreciably affected by promiscuous bomb-dropping from airships wandering over the country in the dark.

"In the twenty-nine raids—great and small—that have taken place over Great Britain since the war began 133 men (of whom 17 were soldiers), 90 women, and 43 children have been killed. But when it is remembered that in the 'Lusitania' alone 1,198 persons were drowned, the Zeppelin raids, as a means of murdering innocent civilians, must be comparatively disappointing to their promoters."

"Admiralty, Feb. 7th.

"In the German Wireless message to-day the Kölnische Zeitung reports that from the Dutch frontier it has received information that on the occasion of the recent air raid to this country His Majesty's ship 'Caroline' was struck by a bomb, in the Humber, and sunk, with great loss of life.

"Neither His Majesty's ship 'Caroline' nor any other of His Majesty's ships, nor any merchant ship, large or small, was struck by a bomb, in the Humber, nor in any other port."



"Giant bombs used by the British air-fleet." A drawing and description as they appear in the "Scientific American" (New York).

The following messages were included in the "Wireless" news sent out from Berlin on February 3rd:—

"To the German Embassy, Washington.

"The German papers, commenting on the Zeppelin squadron attack on England, point out that the British will, of course, clamour against the barbarous German attacks upon open towns and the assassination of women and children, if such happen to be victims of this important military action. The papers point out that Birkenhead, which is the chief place for the construction of warships, is the principal entrance to the harbour of Liverpool, and a depot for American ammunition, at the mouth of the Mersey, and is also a fortress; while Manchester contains sheds of cotton, which, according to the British, is contraband. Nottingham manufactures ammunition and barbed wire, and Sheffield makes cannon and ammunitions, while Great Yarmouth contains a great number of small craft, armed and destined for the chase of submarines."

Berlin, Wednesday.

"To the United Press, New York.

"Judging from the Zeppelin observations, it is believed that the

attack on Liverpool accomplished its object, which was to destroy the grain elevators. It is officially stated that England receives most of her grain from foreign countries through Liverpool, and that there are also great mills there, so that practically all English grain-food supplies must go through Liverpool. It is pointed out that this raid must not be considered as a reprisal for the Baralong incident.

"Weather permitting, it is hoped that this is only the beginning of an air campaign which has as its object the destruction of anything of military importance, or of food values, so long as England continues her policy of starving Germany. It is explained that air raids have been impossible for some months, because the air currents were against the Zeppelins, but the present weather conditions are ideal.

"I am officially informed that Germany also feels it to be impossible for her in future to consent to accept the regulations regarding submarine warfare as long as England (missing) 'continues to intercept goods coming to Germany,' *via* Holland.—(Signed) ACKERMAN, Berlin."

Other Raid Gleanings.

In the Staffordshire area, where there were two attacks, one in the early evening, and the other in the midnight hours, twenty-six civilians, including women and children, were killed.

In one town all the lights were put out and the Zeppelins cruised over without dropping any bombs. Before midnight the lights were restored, and a Zeppelin reappeared and dropped fifteen bombs in twelve minutes. They were released in twos and threes, while the last discharge must have comprised five or six missiles.

At one place in the Midlands Zeppelins were seen at 8 p.m., 11 p.m., and 2 a.m., but no bombs were dropped within ten miles, although distant explosions were heard on the first occasion.

An engine driver, when a bomb fell near him, thought a boiler had exploded.

A Norfolk correspondent of the *Daily Telegraph* states that an airship passed so low over a station he was at that it seemed to be almost on top of their heads; every detail could be plainly seen. Another was seen at dusk. He continues:—"Was in the train from five o'clock last night until four this morning, when I got into —. What gets over me is the fact that we don't use the aircraft guns, as there are several at —. The Zepp. was a splendid target, and was going dead slow, and was hovering over —, although I don't think they have done much damage."

On its second visit to one town thirty incendiary bombs were dropped, but most of them fell on open spaces; there was no important damage and not a single casualty.

At all the places visited inhabitants obtained a view of the raiders, and at one or two spots observers were able so clearly to view the airship that they could see the trapdoor in its bottom opened, a shaft of light stream through, and the bomb released.

Of ten victims in a Leicestershire town four were men, five women and a girl; many of the wounds were caused by flying pieces of metal. At the inquest a constable said a short time after receiving warning he heard a buzzing noise in the air, but could not see airships; while endeavouring to locate them he heard explosions accompanied by flashes. All the bombs fell in streets or gardens, and material damage was confined to the fronts of houses or shops. The jury found a verdict of death by the explosion of bombs from enemy aircraft, and strongly recommended more stringent regulations. When Zeppelins were approaching they urged that hooters be sounded and electricity cut off.

At an inquest on thirteen Staffordshire victims, including four children and three persons each over 60 years of age, the jury's verdict was: "That the thirteen persons whose bodies we have viewed were killed by explosive bombs dropped from enemy aircraft, and that a verdict of 'wilful murder' be recorded against the Kaiser and the Crown Prince as being accessories to and after the fact." The coroner thought it was useless to record such a verdict against any person who could not be brought to trial. With this the jury disagreed. One of the victims was an estate agent who was visiting some property which had suffered.

At an inquest on a victim in Derbyshire the coroner observed that only one other death had occurred in his district, and the damage to property was not serious. He described the raid as a dastardly outrage, which carried German frightfulness into their very midst, and it was appalling to think that such acts could be perpetrated by what was once considered a civilised country.

Of fifty bombs dropped in Lincolnshire, the bulk were incendiary; many dropped in gardens and failed to explode. Only three lives were lost.

At one point a Zeppelin on its journey sent down a flare, apparently with the object of discovering what kind of ground was being passed

over. The light no doubt revealed what was required, and the craft passed on, wasting no bombs on the open fields.

At times the Zeppelins appear to have flown very low. One was seen hovering over a passenger train, but the train was not attacked.

One Zeppelin when crossing the East Coast dropped a message reading, "We will be back later."

Zeppelins were seen to arrive over the Norfolk coast shortly before 5 p.m. One Zeppelin was distinctly heard returning at 5 a.m. the next morning.

In some theatres and cinemas in Staffordshire the audience, when the lights went out, refused to believe that Zeppelins were in the vicinity, and the performance was continued by candle light.

In Staffordshire many bombs dropped in canals, of which there are a large number in the Midlands.

The airships were over one Staffordshire town for forty minutes, which included an interval of quiet of fifteen minutes.

One bomb rolled off the roof of a theatre, and dropped flaming into the roadway.

In Derbyshire, at one place, bombs appear to have been released simply to get rid of them.

In a Lincolnshire town the workhouse outbuildings were demolished.

Of several craters made in the ground, the largest measured 14 ft. across by 11 ft. deep.

In Norfolk a number of birds, most of them sparrows, were killed.

A Norfolk farmhouse was evidently mistaken for a building of another character for between 30 and 40 bombs were rained on it. Fortunately there were no casualties.

In one place the noise of the exploding bombs was thought to be firing at sea.

At one town four Zeppelins were seen at intervals of half an hour each.

In Suffolk 40 or 50 bombs were dropped in an open field; two hens were killed.

At one place in Derbyshire it was pitch dark, but occasionally the presence of the Zeppelin was indicated by the use of its searchlight. The actual bombardment did not last for more than two or three minutes, during which time about 15 bombs were thrown.

In one coast area the information of the approach of Zeppelins was received at 4.30 in the afternoon, and they reached the coastline shortly afterwards.

A bomb fell near a cinema theatre at a time when a bomb throwing incident was being shown on the screen.

The driver of an express, who sighted a Zeppelin following him, put on full speed for seven miles and pulled up in a tunnel.

One bomb which failed to explode in Leicestershire was about 2 ft. 6 ins. high and about 9 ins. in diameter. The raid caused considerable alarm in a local Hun prison camp.

One unexploded bomb found in Staffordshire was estimated to weigh 168 lbs.

A hospital had bombs dropped on each side, but escaped undamaged.

A man who had seen the Zeppelins over the London area on the occasion of the last raid, said he saw one of the raiders this time in Suffolk, and it seemed to be twice the size of those he saw over London.

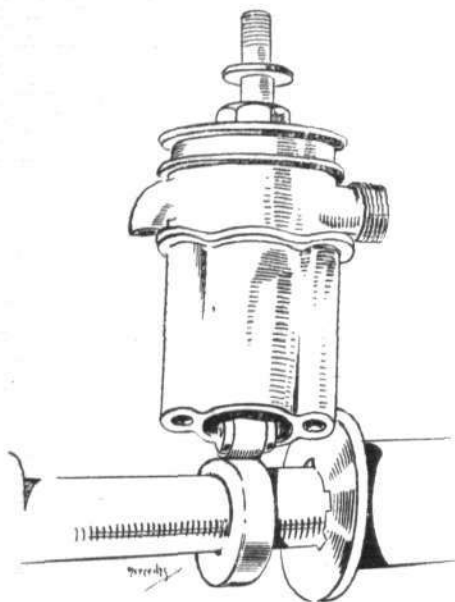
A report presented to the Worcester County Council states that 28 bombs were dropped in one visit on the borders of the county and 17 in the second visit, and the only estimate of damage done put it at £5. Eight bombs and a piece of a propeller were found.

THE 160 H.P. MERCEDES AERO ENGINE.

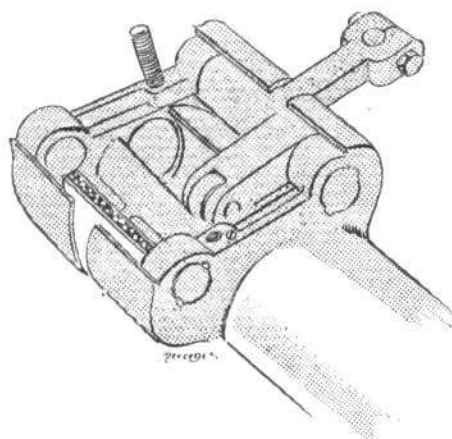
(Concluded from page 103.)

IN addition to the cams, the camshaft carries an eccentric situated just in front of the bevel pinion, its purpose being to operate an air pump for the supply of pressure to the fuel supply. Details of the roller ended rockers and their spindles will be conveyed by a study of the accompanying illustrations, and note should be

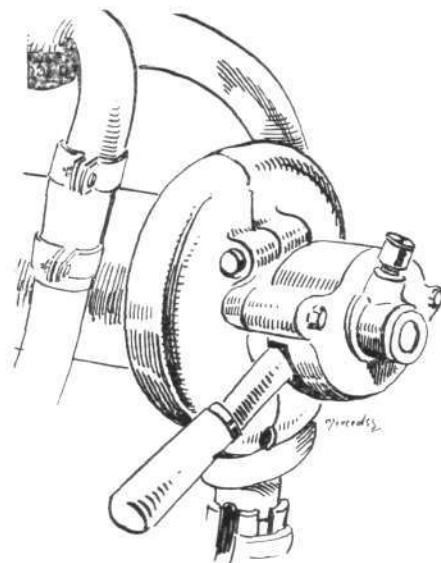
shaft is drawn to its limit of movement towards the rear, this small cam is brought into line with the roller end of the exhaust valve rocker, and so gives a slight lift to the valve as the shaft rotates. Its position on the main cam is such that it is timed to operate the rocker and so depress the valve at the moment when the piston of that



"Flight" Copyright.
Sketch showing the air-pump drive from an eccentric on the camshaft.



"Flight" Copyright.
Detail sketch of one of the rocker-arm boxes of the Mercedes camshaft. The aluminium cap is removed, as also is one of the spindles and its rocker, so as to show the felt pad between two metal plates that bears against the rocker, and so prevents escape of oil from the box.

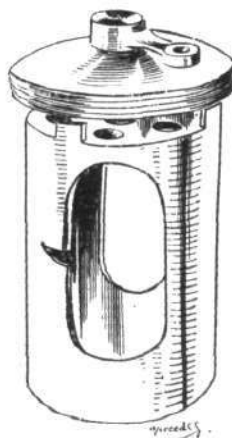


"Flight" Copyright.
External view of the case enclosing the half-compression mechanism of the Mercedes camshaft.

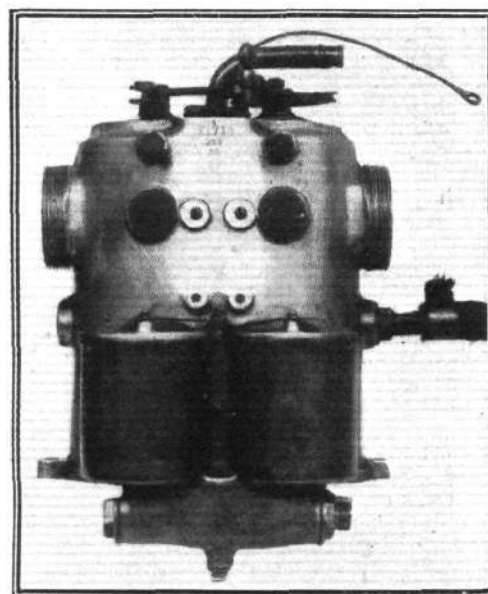
made of the large bearing surface afforded each rocker, which is bronze bushed. The outer end of the rocker arm carries a hardened steel adjustable tappet, which acts directly on the valve stem. Loss of oil from each box through the rocker arm exit is prevented in an ingenious manner, a felt pad, held in a metal casing, pressing against the underside of the central boss carrying the metal bush of each rocker and also against a filling piece that, together with the boss, occupies the whole length of each rocker arm spindle. The latter are merely a driving fit in the side walls of the valve gear boxes, but have two small projections at one end that fit into notches in the wall and so prevented from turning. Aluminium covers on each box give ready access to the interior.

We now come to what is perhaps the most interesting feature of the camshaft, whereby a half compression device is thrown into operation for ease of starting. It will be remembered that we spoke above of the ability of the camshaft to be moved longitudinally in its bearings without disturbing the mesh of the bevels. To enable this to be done, the camshaft carries on ball bearings at its extreme rear a sleeve having on its outer face a quick screw thread. A cylindrical collar encircles this with corresponding threads on its inner face, the collar being held rigidly in the housing by which it is enclosed. To the collar is attached a hand lever at right angles to the axis of the camshaft, so that by swinging the handle around this axis, movement fore and aft is imparted to the sleeve by means of the thread, and so to the camshaft itself through a ball thrust washer. On the exhaust cams there is on each a small protuberance, in reality a miniature cam, which normally does no work. When, however, by means of the hand lever referred to, the cam-

cylinder is nearing the end of the compression stroke, and thus a certain portion of the charge is allowed to escape. In this way the work of swinging the propeller is eased, and, moreover, the engine can, by the aid of this device, "idle" more slowly and smoothly. Obviously the cam faces are of such width that they are able to



"Flight" Copyright.
One of the cylindrical throttles of the Mercedes duplex carburettor. The gas enters from below and passes out through the aperture with the notched-out portion, the latter giving the "idling" position.



"Flight" Copyright.
The Mercedes duplex carburettor, the two mixing chambers, both of which are water-jacketed. It is of the simplest possible type, with non-variable choke tubes and jets.

engage the rocking arms whatever the fore and aft position of the shaft as a whole, and just as obviously the small cam in no way interferes with the functioning of the large cam of which it is an excrescence.

All parts of the engine are supplied with oil under pressure from a pump contained in the base-chamber and driven by the second or lower vertical shaft from the crankshaft bevel. The pump unit, which includes this vertical shaft and its bevel, may be bodily removed from the base of the crank-chamber by extracting a few bolts.

Its general appearance will be seen from one of our illustrations, which shows that the main shaft drives by means of a worm a horizontal shaft carried in two standards on the base plate. Worm wheel, shaft and its four eccentrics are cut from a single bronze casting, which is drilled through from end to end to receive the steel spindle on which it rotates. Steel straps encircle the eccentrics and actuate four pistons, two of which are pumps and two merely valves.

It would seem the two pumps are necessary on account of the peculiar construction of the crankcase—in which it will be remembered the sump is in two parts—since when the original oil level has fallen and the machine is in such attitude that all the oil flows to one or other of the compartments, the pump might not be able to receive oil. For this reason one pump is in communication with the front compartment and the other with that in the rear.

In principle the carburettor employed is of the very simplest type, consisting of two float chambers, two jets, two coned choke tubes and two cylindrical throttle valves, all but the first named being encased in an aluminium casting in which a water jacket is in shunt with the main cooling circuit. The two cylindrical throttles are, of course, coupled up to one another so as to operate simultaneously and equally, and with the exception of the air intake to which reference has already been made there is nothing more—of interest, at any rate—to be said of

the carburettor, other than that three cylinders are supplied by each jet.

The two magnetos, Bosch Z.H.6 type, each control a set of six plugs, of which there are thus two per cylinder, spaced approximately opposite one another in the cylinder walls and passing through the jackets. They are of course provided with means for hand-timing synchronously.

Every part, component, and auxiliary having been described more or less fully, it now merely remains to give one or two particulars that have not so far been touched upon. Having a piston displacement of 2,463 cc. per cylinder and a compression space of 700 cc., that is a total capacity of 3,160 cc. per cylinder, the compression ratio is 4.52 to 1. The total weight of the engine without radiators or water tank is 595 lbs. 2 ozs., which gives a weight power ratio of approximately $3\frac{3}{4}$ lbs. per horse-power, a figure that we confess to be somewhat surprising at first

sight in view of its robustness. It must be remembered, however, that probably the power is over-rated, while again another 160 lbs. at least must be added for the weight of radiator, tank, piping, and water.

The 100 h.p. Mercedes, which had a piston displacement of 9,500 cc., as against 14,778 cc. for the 160 h.p., was known to possess a B.H.P. of 87.7 at 1,200 r.p.m., so that if the proportion holds good the B.H.P. of the engine now under consideration is in the neighbourhood of 136.4, and the weight per h.p. on this showing would be more nearly 5.6 lbs.

It may be remarked, in conclusion, that the Germans do not appear to have yet solved the problems of applying roller or ball bearings to the crankshaft, which should prove of such immense advantage that it strikes us as very probably the direction of evolution of the immediate future—lines along which our own manufacturers have apparently worked with excellent results.

New Lighting Restrictions in Midlands, &c.

A NEW Home Office order, which comes into force on February 16th, has been issued extending the lighting restrictions which are enforced in the Eastern and South-Eastern counties, to the counties of Northumberland, Durham, North and West Ridings of Yorkshire, Derby, Nottingham, Leicester, Rutland, Northampton, Buckingham, Lancashire, Cheshire, Flint, Stafford, Warwick, Worcester, Shropshire, Hereford, Oxford, Berkshire, Gloucester, Wilts and Dorset. In some parts of these areas the restrictions are already enforced, but experience shews that their extension is a necessary precaution.

Resignation of M. Besnard.

It was announced in Paris on Tuesday that M. Rene Besnard, Under Secretary for Aviation, had resigned, and that he would not be replaced. It is said that M. Besnard's reason for resigning was that it appeared to him that it was intended to impose upon him

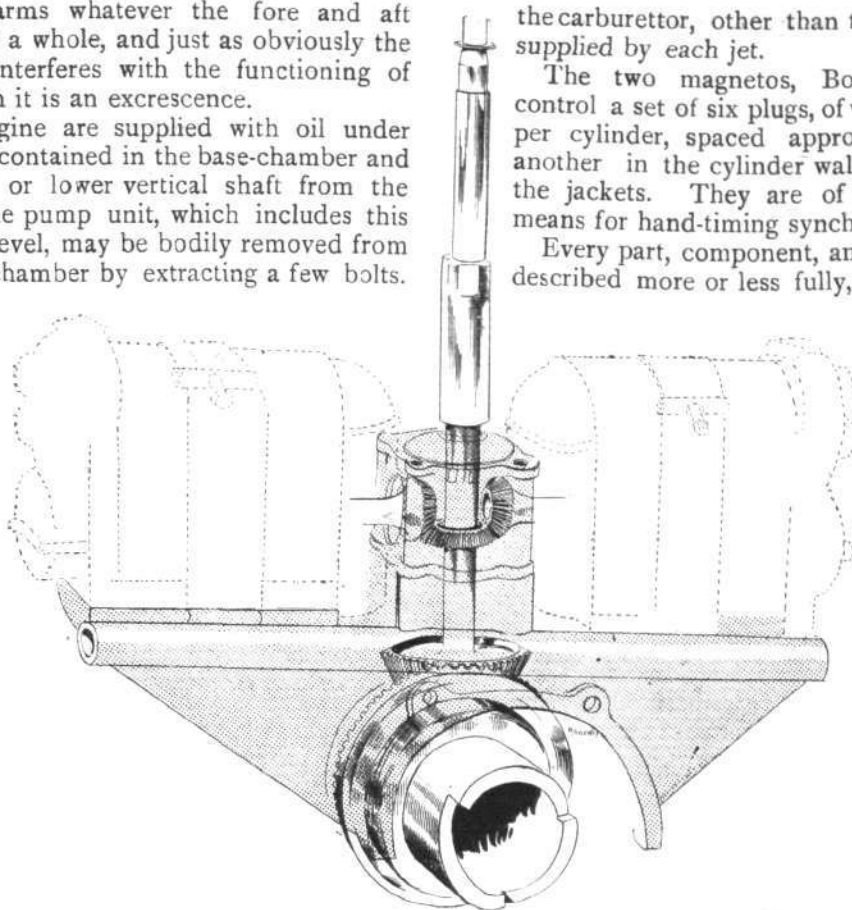
responsibilities far exceeding the powers conferred upon him, and which only the Minister of War would have authority to assume.

French Censor and Air Raids.

It was stated in Paris on Monday that M. Briand had announced that in future, should the Zeppelins reach Paris, an official statement would be issued and the publication of any details forbidden. M. Briand said this method gave excellent results in England.

Prizes for Zeppelin Hunters.

MR. JOSEPH COWEN, of Stella Hall, Blaydon-on-Tyne, proprietor of the *Newcastle Daily Chronicle*, who some time ago offered £500 to the first British aviator to bring down a Zeppelin, has now announced that he will present £1,000 to the crew of the first aircraft to bring down a German Zeppelin in the British Isles or British territorial waters.



Sketch of the distribution gear at the rear of the Mercedes engine.

"Flight" Copyright.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, Feb. 5th.

"Hostile aircraft has shown some activity about Ypres."

General Headquarters, Feb. 6th.

"On February 5th there were twenty-eight combats in the air. In five cases German machines were driven down in the German lines, and a sixth machine was forced to descend with a stopped engine and a broken propeller. One of our machines which went out on reconnaissance duty did not return."

"The winch of a hostile captive balloon was struck by a shell, and the balloon was lost."

French.

Paris, Feb. 2nd. Evening.

"During the night of January 31st-February 1st, a Zeppelin dropped several bombs on the port and town of Salonika. Two projectiles fell on the Greek Prefecture, and a third on the Caisse Générale of the Bank of Salonika, which was completely burnt. The other bombs caused only slight damage to property. The number of victims among the civilian population was 11 killed and 15 injured, while two soldiers were killed and one injured."

"An enemy aeroplane was brought down by one of our machines between Topsis and Verria (west of Salonika). The two aviators, a captain and a subaltern, were taken prisoners."

Paris, Feb. 5th. Evening.

"This morning, towards 11.30 a.m., Sergeant-Pilot Guynemer fought an enemy aeroplane in the region of Frise, and brought it down in a burning condition between Asseville and Herbecourt. This is the fifth enemy machine brought down by Sergeant Guynemer."

Russian.

Petrograd, Feb. 1st.

"In the region of the village of Godutsichki, east of Svientziyany, our aviators bombarded enemy convoys and a train."

Petrograd, Feb. 3rd.

"On the Middle Strypa front our artillery brought down an enemy aeroplane, which fell in the enemy lines near Novostavze Zelena."

Petrograd, Feb. 4th.

"During an aerial reconnaissance to the north of Lake Narocz our aeroplanes, despite a violent fire from the enemy artillery, bombarded the enemy lines and convoys which they had noticed on the Vidzy road. They escaped without injury from the fire of the enemy's artillery, both heavy and light."

"On the front of the Middle Strypa one of our aeroplanes threw bombs on the station of Jezierna and on the rolling stock there."

"North-east of Czernowitz our heavy guns, supported by aeroplanes, bombarded the enemy batteries in the district of the villages of Toporoutz and Rarancze."

Petrograd, Feb. 5th.

"A large number of German aeroplanes flew over our position at Dvinsk, and some Zeppelins was observed."

Petrograd, Feb. 6th.

"The flights of German aircraft over the district of Riga and south of Uxkull continued. Our aviators dropped bombs on Mitau and the railway station and the bridge on the River Aa."

Italian.

Rome, Feb. 7th.

"Along the whole Isonzo front more intense artillery and aircraft

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activity on the part of the enemy is reported. Our artillery effectively replied and compelled the hostile aeroplanes to keep at a great height."

In the Zagora sector (middle Isonzo) one of our airmen daringly attacked two hostile machines, forcing them to take flight by the fire of its machine-gun."

German.

Berlin, Feb. 1st.

"Balkan Theatre.—One of our airships attacked ships and depôts belonging to the Entente in the port of Salonika with great success."

Berlin, Feb. 2nd.

"A large French aeroplane, hit by our anti-aircraft fire, fell down south-west of Chauney. The occupants were injured when taken prisoners."

"Balkan Theatre.—Our aviators have noticed great fires in the port of Salonika, which have obviously been caused by our airship attack."

Berlin, Feb. 3rd.

"In the region of Peronne our airmen shot down an Anglo-French battle-aeroplane. Three of the occupants were killed, and the French observation officer is seriously injured."

Berlin, Feb. 5th.

"One of our airships attacked the fighting positions at Dvinsk."

Berlin, Feb. 6th.

"Near Bapaume a British biplane was compelled to descend. The occupants were taken prisoners."

Berlin, Feb. 7th.

"To the south-west of Widsy a Russian aeroplane, whose pilot had lost his way, fell into our hands in an undamaged condition."

Austrian.

Vienna, Feb. 4th.

"On January 25th five, on January 27th two, and on February 1st three of our seaplanes successfully bombarded Durazzo, especially the encampment and tents near the town. Despite a heavy fire from coast batteries and war vessels our aircraft returned safely. On February 2nd Valona was bombarded by three seaplanes. The harbour works and the various camps were struck several times. A heavy fire was opened by the coastal and naval batteries, and one seaplane was twice struck in her engine and was forced to descend on the sea. The commander of the air group, Naval Lieutenant Konjovic, immediately came down by the side of the damaged seaplane, and in spite of heavy wind and high seas succeeded, in face of the guns on the island of Saseno and of two destroyers approaching at full speed, in saving the two wounded flying officers and taking them in his own machine, subsequently completely destroying the damaged seaplane. Lieutenant Konjovic, with his double complement, returned safely to the Gulf of Cattaro after a flight of 140 miles."

"A Russian air squadron dropped six bombs on Buczacz, killing two inhabitants and wounding six. Our aviators successfully bombarded the terrain west of Czortkof and north of Zbaraz."

Turkish.

Constantinople, Feb. 6th.

"On February 4th a Turkish battle aeroplane piloted by Lieutenant Kronhais pursued a British biplane. The latter was shot down between Imbros and Gaba Tepe, and fell into the sea."

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According to the mate of the trawler, his attention was attracted by a flashing light, and after getting in the gear the trawler was steered in that direction. It was then daylight, and eight men were seen on the top platform. The greater part of the airship was under water, and about fifty feet of the fore part of the envelope was above water.

Subsequently about twenty men were seen, and others were apparently at work trying to repair the airship, as the sound of hammers was heard. As the crew of the trawler only numbered nine and they were unarmed, the skipper decided that it would be too risky to take the Germans on board, and as it appeared that the airship would probably keep afloat for some time, he made for the nearest point to report to the British naval authorities.

It was reported in Amsterdam on February 2nd, that the "L19" was seen over Holland in the Island of Ameland on the previous day and that some sixty shots were fired at it by Dutch soldiers. It was believed that the airship, which was flying very low, was hit; it disappeared in a north easterly direction. In a French official communiqué sent out by wireless on February 5th, it was stated:—

"It is confirmed that the Zeppelin 'L19' was brought down by Dutch guns at the moment when, with their usual contempt of neutrality, the airship passed over Dutch territory."

The Loss of the Zeppelin "L19."

THE following announcement was issued by the Admiralty on February 3rd:—

"A fishing trawler has reported to-day to the naval authorities that she has seen a German Zeppelin in the North Sea in a sinking condition."

The following official communiqué was issued by the German Admiralty on February 4th:—

"The naval airship 'L19' did not return from a reconnoitring cruise. All investigations have proved fruitless. According to a Reuter telegram the Grimsby trawler 'King Stephen' sighted on the 2nd inst. an airship floating in the North Sea, with her cars and the gasbag partly submerged. The crew were on the upper part of the balloon. Their request for rescue was refused by the English trawler under the pretext that her crew was weaker than that of the airship. The trawler returned to Grimsby."

The Press Association correspondent at Hull reported that the captain of a French vessel reported having seen a Zeppelin destroyed in the North Sea on the morning of the 2nd inst.

Two naval vessels which made a special search of the area failed to find any trace of the airship.

AIRCRAFT AND THE WAR.

THE *Daily Telegraph* correspondent in Paris, writing on February 6th, says:—

"For the first time the French General Headquarters has broken the rule of strict anonymity in recording feats performed at the front. Thus we learn officially that Sergeant Guynemer brought down yesterday his fifth enemy aeroplane. The sergeant is just 21, and looks 19. He is a tall, slight lad with dark hair, but scarcely a shadow of a moustache. He was a public schoolboy when war broke out, and volunteered. He only got his flying commission nine months afterwards, in April, 1915. Yesterday's was his fourteenth flight over the German lines. His most exciting experience was when he, with another aviator, pursued three German flying machines. His bag that evening was three Aviatiks—two brought down by him and one by the other aviator. On another occasion he had an extraordinary battle with a Fokker. Both machines circled round one another, firing their machine guns. Suddenly Guynemer dashed upward, and flew over the German, and while doing so shot the enemy aviator through the head. Guynemer just managed to get back to the French lines, his machine being almost a wreck. He wears the Legion of Honour military medal and the Military Cross, the latter with four palms or clasps."

According to the *Flensburger Nachrichten*, a German observation balloon was seen last week-end near Osterby, Schleswig, drifting away. It was thought that she had probably broken loose from the North Sea coast.

The *Telegraaf's* Belgian frontier correspondent on Friday reported that during the previous few days German searchlights and flares at Antwerp had been no longer perceptible. Presumably a guilty conscience had led the Germans to fear air reprisals from the Allies.

The *Morning Post* correspondent in the east of France, writing last week regarding the conditions in the Champagne district, said:—

"The Zeppelin raids in the district have done no damage at all. Indeed, one might almost defy them to do any damage, for the little townships, nursed in the laps of the rolling hills, are so darkened that their position at night is nearly unplaceable. In this respect, however, there happened a sequel to the last raid that is not without significance. The Zeppelin had been chased away after discharging harmlessly a number of bombs that fell in fields (this is not an official euphemism, because I have seen the holes) when a fire broke out in a small workshop situated at a most interesting point. It blazed up surprisingly, and its origin has not been satisfactorily established. I am assured on all hands that there are German spies and agents everywhere. On the walls of a British aid institution out in the eastern district hangs the notice in English and French: 'Ask nothing. Answer nothing.' It is a principle that has still to be lived up to everywhere."

A Reuter message from Petrograd on Friday said:—

"As a retort for the German air raid on Dvinsk, Russian aviators violently bombarded the military buildings at Ponievege, and destroyed a long stretch of the railway line and blew up an ammunition train."

The *Daily Telegraph* correspondent in Rome on Sunday said:—
"Austrian aeroplanes are making reconnaissance flights over Durazzo."

Information was received in Paris from Milan last Tuesday to the effect that Austrian aeroplanes dropped bombs on Durazzo in order to terrorise the inhabitants. Several houses were destroyed. The aviators also threw down papers suggesting that the Serbians should return to their country. Another manifesto threatens the destruction of Durazzo if the embarkation of Serbians continues.

The Durazzo correspondent of the *Agenzia Nazionale* reported that the aeroplane which distributed pamphlets over Durazzo was brought down near Bazarscian, and the aviators captured.

The *Frankfurter Zeitung* last week reported that for some time past Metz has been repeatedly subjected to French aerial attacks.

A Reuter message from Petrograd on February 1st mentioned that it was reported from the southern front that German aeroplanes of a new type are being used. They are smaller than the Taube, and are armed with special small machine guns.

Mr. G. Ward Price, writing from Salonika under date February 1st, says:—

"Salonika experienced the full thrills of modern warfare in the form of a Zeppelin raid this morning. Those lying awake at 2.45 heard a loud buzz, quite different to the familiar whirr of the aeroplane. Between then and three o'clock twenty-five large bombs, with terrific crashes, fell into the water of the harbour and on the town. The people with windows facing south distinctly saw the airship, and in the opinion of some who have seen Zeppelins over London this was sailing much lower. From the roof one saw the windows of the tight-packed houses in the native town, which rises

like an amphitheatre on the hill around the bay, flickering one after another into light. The streets filled quickly. Greek firemen worked hard with hand-pumps, and then parties of bluejackets, hurriedly landed from the ships, came along at a double, carrying a hose, and the fire was at last localised. Several wounded Greeks were in the streets as I passed. Seven persons were killed near the docks, and ten in the town. A man and his wife were killed in bed. Two Greek soldiers were killed, and twenty-eight persons wounded. The windows of some of our store-houses were smashed, as were those of the Greek Prefecture, where a bomb fell in the garden ten metres from the entrance. At three a.m. the Zeppelin made off westwards."

A Reuter telegram of the same date reported:—

"A German aeroplane was brought down to-day by the Allies at Topsin. The two aviators were taken prisoners and sent to Salonika."

The *Times* correspondent at Salonika, writing on February 2nd, says:—

"The German aeroplane captured yesterday at Topsin was brought into Salonika this afternoon and deposited in front of the headquarters of the French Staff, where crowds of sightseers surround it. It is a huge machine of the Albatros type. It was not, as was reported yesterday, brought down by artillery fire, but by a French aeroplane bullet which smashed its radiator. The two successful airmen were publicly thanked and decorated by General Sarraill to-day. The loss of Greek lives and the damage to Greek property, estimated at about £250,000, inflicted by the Zeppelin have provoked an outburst of indignation in the local Press. Sedulous efforts are being made by German propagandists here to persuade the ignorant lower classes of the population that all the injuries to life and property in yesterday's Zeppelin raid were caused by the guns of the Fleet. It is, however, officially declared to-day that not a single shot was fired by the ships, all the explosions heard in the town being those of Zeppelin bombs, which are now known to have been 25 in number."

"Fourteen French aeroplanes yesterday flew over the Bulgarian town of Petritsch and threw over 180 bombs on the enemy's positions, causing considerable damage to their camps."

According to a Bulgarian *communiqué*, 470 men were killed in the Bulgarian camps, and the total of killed and wounded was about a thousand.

The *Standard's* correspondent at Athens says:—

"The Allies' reply at Petritsi to the German raid on Salonika had better results than were at first supposed. As at Monastir, photographs showing bird's-eye views of the enemy's positions had been previously taken and enlarged for the use of airmen."

"The Allied airmen returned uninjured, though heavily shelled. Panic broke out among the inhabitants of Petritsi. Much damage was done to the military buildings."

According to reports from Athens the Greek Government has protested to Berlin against the bombardment of Salonika. The local pro-German newspapers have also protested at the indiscriminate bombing of the town. The raid has occasioned a boom in insurances, as it is stated that out of £100,000 of goods destroyed only £4,000 worth was insured. German agents endeavoured to circulate reports that the damage to the warehouses was done not by bombs but by shells fired by the Fleet, but it is pointed out that naval guns were not fired as the Zeppelin offered but a poor mark.

A second attempt was made by a Zeppelin on the following day, but on coming under the fire of the British batteries, it retired.

An Exchange telegram from Athens on Saturday stated that two Zeppelins were observed on the previous evening in the proximity of the Greek frontier, but they did not venture over the French lines.



Small Steamer Sunken by Zeppelin Bomb.

ALMOST at the same time as the fate of the "L19" became known it was learnt that a Zeppelin had dropped a bomb on a small coasting steamer while at anchor. The steamer—the "Franz Fischer"—left Hartlepool on Monday afternoon, January 31st, bound south, and about 10.30 on Tuesday evening, according to a rescued seaman, the Zeppelin appeared right overhead. The bomb fell near the engine room, and the ship only remained afloat for two minutes. Of the crew of sixteen only the chief engineer, a steward and a seaman were picked up by a Belgian steamer and transferred to a mine sweeper, which brought them into port.

Fatal Accident at Aldershot.

WHILE flying at Aldershot recently a machine, piloted by Lieut. Browning, was seen to fall to the ground. The pilot and observer, Lieut. J. S. Reed, were both seriously injured, and the latter, in spite of an operation, died from injuries to the brain.

Third Zeppelin Attack on Paris Attempted.

A THIRD Zeppelin attack on Paris was apparently attempted on January 31st, but the airship was sighted at Compiègne and retired.

Public Funeral to French Zeppelin Victims.

A PUBLIC funeral was given in Paris last Monday to 25 victims of the Zeppelin raid on the French capital, the first part of the ceremony taking place in the church of Notre Dame de la Croix, Cardinal Amette, Archbishop of Paris, giving a brief address after the requiem mass. The church was crowded with relatives and friends of the victims, senators, deputies and councillors, while the President was represented by Mme. Poincaré. From the church the coffins were borne to the Père la Chaise Cemetery on seven ammunition wagons, preceded by a number of cars bearing floral tributes.

High Climbing in Italy.

A REPORT received in Paris on Sunday stated that Sub-Lieutenant Guidi, piloting a Caudron biplane, rose with an observer in a flight in Italy to 17,388 ft. in 75 minutes.

Italian Machine Over Switzerland.

INFORMATION was received in Paris from Turin on the 4th inst. that an Italian aeroplane yesterday flew over Lugano in the direction of Monte Cenere, and, being fired upon by Swiss soldiers, came down near the Velleggio Valley. He was subsequently allowed to return to Italy with his machine, his trespass having admittedly no connection with military operations.

Gilbert Escapes and is Recaptured.

A MESSAGE from Zurich states that on Saturday Gilbert and another French aviator, Pary, succeeded in escaping from the local internment barracks in civilian clothes. They were, however, discovered a few hours later at Olten in a train which was taking seriously wounded French soldiers to Geneva. On Tuesday Pary was sentenced to twenty days' imprisonment, Gilbert's sentence being deferred for a day or two.

Sentence on Lieutenant Otto Thelen.

AT a military court at Maidenhead on Tuesday, Lieutenant Otto Thelen, of the German Flying Corps, was sentenced to nine months' detention in the military barracks, Chelmsford, for attempting to escape by tunnelling from Holyport prison camp. Lieutenant Thelen was rescued from a sinking aeroplane in the North Sea and had previously escaped from Donington Hall.

German Air Casualties.

ACCORDING to the *Daily Mail* correspondent in Copenhagen, the 23 Prussian casualty lists, Nos. 419-442, for January include the names of 24 aviators killed and 11 wounded. Eighteen are given as prisoners in the hands of the Allies and two as interned in Holland, through an involuntary landing.

A Flying School at Kiel.

ACCORDING to a message from Zurich a new naval flying school has just been established at Kiel, where Zeppelin crews are being trained. Zeppelin and waterplane trial trips occur daily.

Warning to Kiel People.

ACCORDING to advices from Copenhagen the local authorities at Kiel have issued the following notice:—

"French newspaper reports regarding the Paris raid clearly demonstrate that the inhabitants acted flatly contrary to the directions issued by the authorities. Actuated by genuine Gallic curiosity and craving for sensation, they crowded into the streets after the Zeppelin had been sighted, thus unnecessarily increasing the number of casualties.

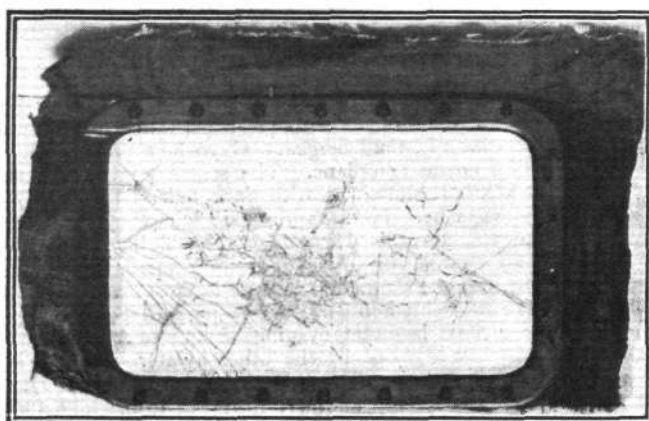
"The attention of the inhabitants of Kiel is again drawn to the fact that the official signal in case of an aerial attack on the city will be a series of continuous short shrieks from steam sirens lasting two minutes, after which everybody must remain indoors. Another signal consisting of long shrieks, also continuing two minutes, will inform the people that the danger is over." A somewhat similar notice has been issued in Cologne.

Prohibited Exports.

FOR sending Shantung silk—prohibited goods—to the West India Dock without a licence, a firm of commission agents were fined £20 at the Thames Police Court last week. For the prosecution it was stated that Shantung silk was used in the making of aeroplanes.

For Users of Beardmore Engines.

THE splendid work accomplished with Beardmore aero engines will make everyone who has one in his charge anxious to do everything possible to get the best out of it. To that end he should at once send for a copy of the book just published by the company



An observation panel, made of Triplex safety glass, which was fitted to an aeroplane which was completely smashed one day last week, an object-lesson which ought not to be lost upon builders of aircraft.

which gives full instructions regarding the care and management of this successful engine. Not only so, but there are complete directions as to unpacking the engine and installing it in the machine. The book is illustrated by the necessary photographs and diagrams, the reference number of every part being clearly indicated, so that replacements should they become necessary at any time may be ordered without any fear of confusion. Apart from its valuable character from the point of view of actual users, the book should also be of great use to manufacturers who are installing the engines in their aeroplanes, and enquiries for the book should be addressed to the Beardmore Co., at 112, Great Portland Street, London, W.

Sopwith Staff Entertain Directors.

BY way of a brief respite from their labours, the employees of the Sopwith Aviation Co., on January 29th, entertained at dinner the directors, Mr. T. O. M. Sopwith and Mr. R. O. Cary. The Mayor of Kingston presided, and said that the function was also a birthday party, because in January three years ago the Sopwith Co. made their start at their present works. He referred to the growth of the firm, since it started at Brooklands with a staff of six men, and said that Mr. Sopwith's success in building the fastest machine in the world in 1914 was a splendid record for any man to achieve. The Mayor also made a eulogistic reference to the fine work of Mr. Cary.

Mr. T. O. M. Sopwith, in replying, said that the credit for the successful machines really belonged to the fellows who had the getting out of the machines, and he mentioned the names of Mr. F. G. Sigrist, Mr. H. Hawker, and the drawing office and charge hands. He referred to the fact that Mr. Cary had organised a very efficient works fire brigade as well as a band, of whose proficiency they would be able to judge.

England had been at war for the past eighteen months, and they had all been told repeatedly by the authorities that every man in the shop was doing his bit, and the harder each man in the shop continued to do his bit, the more he would assist directly in the early termination of the war. He asked them to continue with unabated energy.

Mr. R. O. Cary, in proposing the toast of "The Naval and Military Forces," referred to the spirit and bravery animating both the naval and military air services, and went on to refer to the excitement created by certain newspapers about the Fokker machine. He said they must realise that this kind of machine was a purely defensive one, and did not worry our people a bit. This country possessed something which would successfully outstrip a Fokker any day. Anyone could produce a machine of very high horsepower, and short radius of action, which would beat a Fokker. He also referred to the great kindness and consideration shown to them by the naval resident inspectors. They did nothing to retard the output, for after all that was the great thing.

Lieut. Higginbotham, in replying, paid a tribute to the efforts of Mr. Sopwith and his staff in putting their very best brains and power into their work.

On the suggestion of Mr. R. O. Cary, a collection was taken for the Royal Naval Air Service Comforts Fund, and realised over £20.

An excellent musical programme was gone through, not the least interesting items being those rendered by the Sopwith Works Band, under the leadership of Mr. R. O. Cary, who was loudly applauded for a very fine violin solo.

Models

ALL communications in connection with this section should be addressed to the Model Editor, "FLIGHT," 44, St. Martin's Lane, London, W.C. Correspondents are requested to write on one side of the paper only.

A C.A. and a Tractor.

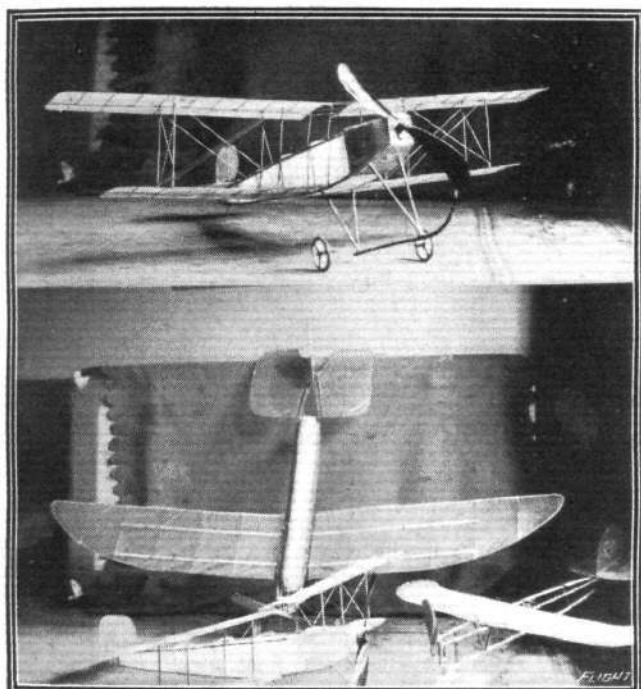
MR. KINGSLEY W. G. PINNEY, of Glasgow, sends the following particulars of two of his latest models, which will doubtless be of considerable interest to other readers of "FLIGHT":—

"The large C.A. model is fitted with an autoplan engine and air-container obtained from Gamage's. Two stout *longerons* run along the sides of the container, and to these are attached the planes, tail,

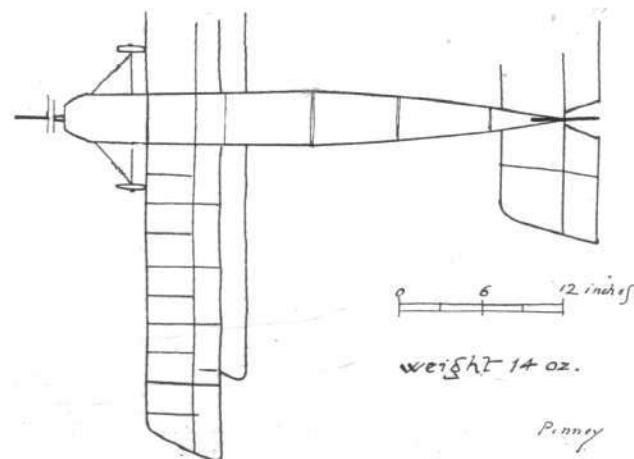
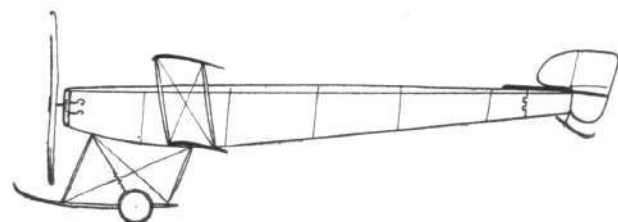
and chassis, in order to keep the engine and container free from stresses. The main planes are built with 18 gauge steel wire and double surfaced. The wing spars were originally of an I section, but they were far too frail, and I now use hollow spars of a square section.

"This model has only been out once, and then it did long hops of about 10 yards. This was probably owing to the fact that the temperature was only 57° F., causing the engine to run badly. However, I am confident that this machine will make some good flights in warmer weather.

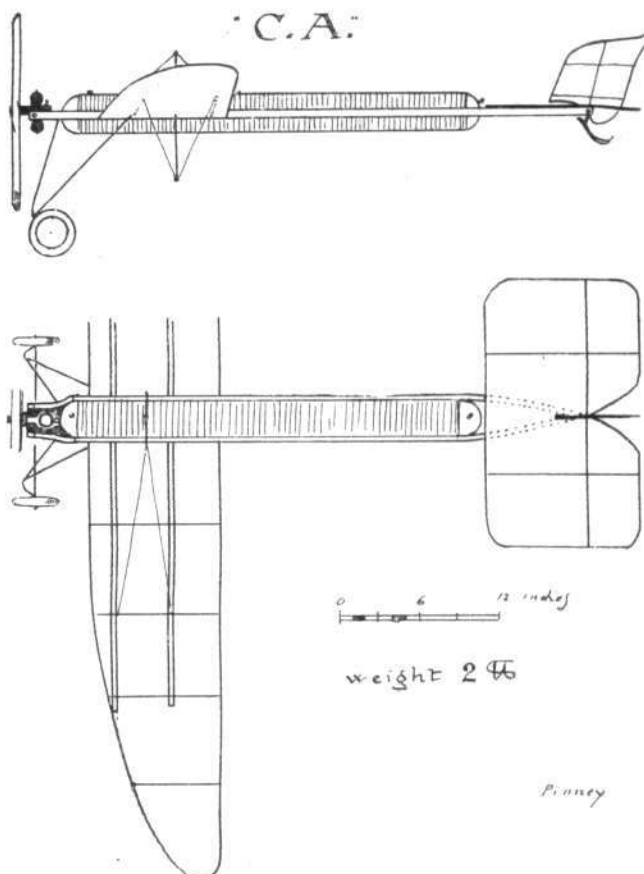
"The tractor biplane has only just been built, and the top of the fuselage is still uncovered to allow for the main planes being fixed correctly by actual flying tests. The fuselage is formed of four



SOME OF MR. PINNEY'S MODELS.—Above, the tractor biplane, while prominent in the lower view is his compressed air-driven monoplane.



A 14 oz. tractor biplane built by Mr. Pinney.



Mr. Pinney's compressed air-driven model monoplane.

longerons separated by $\frac{1}{2}$ in. maple formers. The forward part is enclosed by thin aluminium sheet, while the rest is covered with Jap silk doped with Cellon. The motor has two skeins of rubber geared with Bonn's $\frac{1}{16}$ in. gear wheels. A small celluloid window is fitted underneath the engine cowl for the examination of the rubber hooks, &c. The chassis is of the Avro type with a wooden skid laminated with 15 gauge steel wire. The wheels were fretted out of $\frac{1}{4}$ in. satin walnut, with three spokes, and covered with Jap silk. The main planes are built of 20 gauge steel wire covered with Jap silk doped and varnished. The inter-plane struts are of satin walnut and braced diagonally. The propeller is 14 ins. diameter, supplied by J. Bonn and Co.

"I am now waiting for a calm day which will enable me to test this model. The result of a few glides indoors is very promising, the gliding angle being about 1 in $5\frac{1}{2}$ or 6. Considering the weight is 14 ozs., this seems quite good.

"The small monoplane shown on the right of the group was described in 'FLIGHT' last year. The fuselage of this machine was originally enclosed, but the silk has been removed owing to its deterioration. The maximum duration of this model is 31 seconds to date."

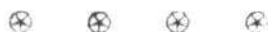


A STRIKING EXAMPLE OF "WINDOW DRESSING" AT MESSRS. ROBINSON AND CLEAVER'S.—"Air," "Sea" and "Land" each have a section to themselves, and above we reproduce the window devoted to "Air." In this are, in addition to aviation outfits, relics of interest pertaining to the war, the whole emphasising the extent to which catering for aircraft requirements has become a necessity.

IMPORTS AND EXPORTS, 1915-1916.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see "FLIGHT" for January 25th, 1912; for 1912 and 1913, see "FLIGHT" for January 17th, 1914; for 1914, see "FLIGHT" for January 15th, 1915; and for 1915, see "FLIGHT" for January 13th, 1916:—

	Imports.		Exports.		Re-Exportation.	
	1915.	1916.	1915.	1916.	1915.	1916.
	£	£	£	£	£	£
January ...	20,382	1,509	435	6,399	13,706	—



PUBLICATIONS RECEIVED

The Flying Machine. Two Papers: The Aerofoil and the Screw Propeller. By F. W. Lanchester. London: Institution of Automobile Engineers, 28, Victoria Street, S.W. Price 3s. 6d. net.

The Athenæum Subject Index to Periodicals. European War: Its Economic, Political, and Military History. London: The Athenæum, Breams Buildings, E.C.



NEW COMPANY REGISTERED.

Dudley Foundry Co., Ltd.—Capital £10,000, in £1 shares. Acquiring business of ironfounders, machine and tool makers, and general engineers carried on by T. J. Hill, F. E. Clark, and C. Fenn as the Dudley Foundry Co., aeronautical and motor engineers, &c. First directors, T. J. Hill, F. E. Clark, and C. Fenn.

If you require anything pertaining to aviation, study "FLIGHT'S" Index to Advertisers and "FLIGHT'S" Buyers' Guide and Trade Directory, which appear alternately in these pages—one each week.

Aeronautical Patents Published.

Applied for in 1914.

Published February 3rd, 1916.

- 24,084. T. CONSTANTARAS. Aeroplanes, hydroplanes, &c.

Applied for in 1915.

Published February 3rd, 1916.

186. T. R. MACMECHEN AND E. M. FOX. Airships.
417. L. A. HAYOT. Stabilizing means for aeroplanes.
4,525. H. O. SHORT. Valves for gas-containers in airships.

Published February 10th, 1916

- 2,103. W. V. KAMP. Airships or dirigible balloons.
2,233. J. S. FAIRFAX. Flying machines.



Index and Title Page for Vol. VII.

The 8-page Index for Vol. VII of "FLIGHT" (January to December, 1915) is now ready, and can be had from the Publishers, 44, St. Martin's Lane, London, W.C., price 6d. per copy, post free.

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